Attachment 6

Greater Los Angeles County Region

IRWM Implementation Grant Proposal

Monitoring, Assessment, and Performance Measures

Attachment 6 consists of the following items:

Monitoring, Assessment, and Performance Measures. The purpose of this attachment is to describe the monitoring, assessment, and performance measures that will be used to evaluate each proposed project. These measures will ensure that this proposal meets its intended goals, achieves measurable outcomes, and provides value to the Region and the State of California.

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Introduction

For each project in this Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Implementation Grant Proposal, specific performance measures and monitoring approaches have been developed to assess project performance on an ongoing basis. The purpose of this attachment is to provide a discussion of the monitoring system to be used to verify project performance with respect to the project benefits or objectives identified. For each proposed project listed below, this attachment will identify data collection and analysis to be used.

This attachment will also discuss how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the each project. Each project applicant has prepared a Project Performance Measures Table (included in this attachment) that includes the following:

- *Project goals* – specific goals of the proposed project
- *Desired outcomes* – specific deliverables of the proposed project
- *Targets* – measureable targets that are feasible to meet during the life of the project
- *Performance indicators* – measures to evaluate change that is a direct result of the project being built
- *Measurement tools and methods* – agency monitoring/reporting on the metrics

Citywide Storm Drain Catch Basin Curb Screens

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Citywide Storm Drain Catch Basin Curb Screens Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-1.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Project will consist of installation of curb screens onto all of the City of Calabasas's storm drain catch basins to capture trash, sediment and vegetation before it can be discharged to local waterways, including the Los Angeles River and Malibu Creek. These pollutants will be captured at street level and collected by street sweepers. These activities will be executed in order to meet the Project goals listed in Table 6-1. Project goals will each have performance measures that will be used to quantify and verify project performance. The performance measures used to quantify and verify project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-1: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Quality - Improve water quality of receiving waters	Demonstrate reduction in trash, sediment and vegetation reaching the Los Angeles River, Malibu Creek and receiving waters	Avoid discharge of 48,224 pounds of trash, sediment and vegetation per year	Pounds of trash collected by street sweepers	Street sweeper reports
	Demonstrate reduction in bacterial loading to Los Angeles River, Malibu Creek and receiving waters	Decrease bacterial loadings	Decrease in bacteria levels from water quality sampling	Water quality sampling
Flood Protection - Improve flood protection	Demonstrate reduction in storm drain cleanouts	Reduce frequency of storm drain cleanouts by an average of 2 times per year	Number of storm drain blockage cleanouts per year	Invoices from cleanout contractors
Improve Habitat	Demonstrate reduction in trash discharged to Malibu Creek and the Los Angeles River	Decrease trash discharged to riparian habitat	Pounds of trash collected by street sweepers	Street sweeper reports
Improve Recreation	Demonstrate reduction in trash discharged to Malibu Creek, Los Angeles River, and beaches	Decrease trash in waterways	Pounds of trash collected by street sweepers	Street sweeper reports
			Pounds of trash collected during beach clean-ups at mouths of Malibu Creek and Los Angeles River	Beach clean-up results

Citywide Storm Drain Catch Basin Curb Screens

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
	Demonstrate reduction in bacteria concentrations in Malibu Creek, Los Angeles River and beaches	Decrease bacterial loading in waterways and at beaches	Quantity of bacteria in Malibu Creek and Los Angeles River Reduced bacterial TMDL exceedances at beaches near mouths of Malibu Creek and Los Angeles River	Water quality sampling Beach report cards

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-1). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Water Quality - Improve Water Quality of Receiving Waters

The Project will improve the water quality of receiving waters by capturing, on average, 48,224 pounds per year of trash, sediment and vegetation at catch basin curb screens, and preventing these contaminants from reaching storm drains which drain to the Los Angeles River and Malibu Creek. In order to measure the performance outcome of this goal, the amount of collected trash, sediment and vegetation, as well as the measured decrease in bacterial loadings will be used. This will be verified by using reports of pounds of material collected by street sweepers that will be recorded for analysis using Excel spreadsheets.

The measured decrease in bacterial loadings will be verified by using water quality sampling data for Malibu Creek and Arroyo Calabasas, which is tributary to the Los Angeles River. The data needed for water quality sampling consists of grab samples taken during storm events where the two creeks exit the City of Calabasas. The samples will be sent to a lab which will test the samples for bacterial concentrations. The results of these sampling events will be collected, compiled, and analyzed by the City using Excel spreadsheets to compare water quality before and after the Project.

The first monitoring target selected for this Project Goal is the prevented discharge of 48,224 pounds of trash, sediment and vegetation per year. This target is appropriate to demonstrate the improved water quality of receiving waters. The tools and methods described above will effectively monitor performance and progress because the removal of trash, vegetation and sediment by street sweepers will provide a measured, recorded set of data to verify the amount of material prevented from entering the storm drains.

The second monitoring target selected for this goal is the demonstrated reduction in bacteria levels in Malibu Creek and Arroyo Calabasas, which is tributary to the Los Angeles River. This target is appropriate to demonstrate the improved water quality of receiving waters. The tools and methods described above will effectively monitor performance and progress because they will demonstrate the measured reduction in bacteria concentrations present.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater

It is anticipated that it will be feasible to meet the monitoring target by 2016 because the curb screens will immediately begin preventing trash, sediment and vegetation from entering storm drains upon installation in 2015. Performance testing will take place as each screen is installed to ensure trash is captured, and quarterly reports will be received from the street sweeping company with the pounds of trash captured for one year. This is well within the expected Project lifespan of 20 years.

Improve Flood Protection

The Project will improve flood protection by implementing the use of curb screens on catch basins to reduce the number of storm drain cleanouts by two times per year. In order to measure the performance outcome of this goal, the decrease in the number of storm drain cleanouts per year will be used. The number of storm drain cleanouts per year will be verified by examining the number of times each year that a contractor is required to respond to storm drain blockages. The data needed to verify this consists of the invoices sent to the City of Calabasas by the contractor; the data will be analyzed after collection using Excel spreadsheets.

The monitoring target selected for this Project Goal is the reduction in the frequency of storm drain cleanouts by 2 times per year. This target is appropriate to demonstrate improvement in flood protection because storm drain blockages cause localized flooding. The tools and methods described above will effectively monitor performance and progress because they provide a measured, recorded set of data to verify the number of drain blockages per year that require cleanouts.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Maintain and enhance public infrastructure related to flood protection, water resources and water quality

It is anticipated that it will be feasible to meet the monitoring target by 2016 because the curb screens will immediately begin preventing trash, sediment and vegetation from entering storm drains upon installation in 2015. Monthly invoices from the cleanout contractor will be received

and recorded throughout the first year of implementation to ensure that the number of cleanouts has decreased. This is well within the expected Project lifespan of 20 years.

Improve Habitat

The Project will improve habitat by implementing the use of curb screens on catch basins which will prevent the discharge of trash to storm drains. In order to measure the performance outcome of this goal, reduction in trash found in water bodies will be used. The reduction in trash will be verified by using the amount of trash collected during creek clean-ups. The data needed for the trash collected during creek clean-ups consists of reports of the pounds of trash collected during creek clean-ups before and after implementation of the project; the data will be analyzed after collection using Excel spreadsheets.

The monitoring target selected for this Project Goal is a decrease in the pounds of trash discharged to riparian habitats.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Protect, restore, and enhance natural processes and habitats

It is anticipated that it will be feasible to meet the monitoring target by 2016 because the curb screens will immediately begin preventing trash, sediment and vegetation from entering storm drains upon installation in 2015. The documented reduction in trash, sediment, and vegetation will demonstrate the benefits to habitat. This is well within the expected Project lifespan of 20 years.

Improve Recreation

The Project will improve recreation in and around receiving waters by capturing, on average, 48,224 pounds per year of trash, sediment and vegetation by implementing the use of curb screens on catch basins. In order to measure the performance outcome of the Improve Recreation goal, the avoided discharge of trash, sediment and vegetation, as well as the measured decrease in bacterial loadings will be used.

The avoided discharge of trash, sediment and vegetation will be verified by using reports of pounds of material collected by street sweepers that will be recorded for analysis using Excel Spreadsheets. Trash collected during beach clean-ups can also be used to verify a reduction in trash affecting recreation for those beaches adjacent to the mouths of the Los Angeles River

and Malibu Creek. Reports of the pounds of trash collected during these clean-ups will be recorded and analyzed using Excel spreadsheets.

The measured decrease in bacterial loadings will be verified by using water quality sampling data for Malibu Creek and Arroyo Calabasas, which is tributary to the Los Angeles River. The data needed for water quality sampling consists of grab samples taken during storm events where the two creeks exit the City of Calabasas. The samples will be sent to a lab which will test the samples for bacterial concentrations. The results of these sampling events will be collected, compiled, and analyzed by the City using Excel spreadsheets to compare water quality before and after the project.

The levels of bacteria measured at beaches located at the mouths of the Los Angeles River and Malibu Creek can also be used to determine the effectiveness of the Project in reducing bacteria, and can be measured using the data contained in Beach Report Cards developed by Heal the Bay. The data contained in these includes exceedances of bacteria TMDLs, and will be collected and analyzed using Excel spreadsheets.

The first monitoring target selected for this Project Goal is the prevented discharge of 48,224 pounds of trash, sediment and vegetation per year. This target is appropriate to demonstrate the improved water quality of receiving waters. The tools and methods described above will effectively monitor performance and progress because the removal of trash, vegetation and sediment by street sweepers will provide a measured, recorded set of data to verify the amount of material prevented from entering the storm drains.

The second monitoring target selected for this goal is the demonstrated reduction in bacterial loadings in Malibu Creek and Arroyo Calabasas, which is tributary to the Los Angeles River. This target is appropriate to demonstrate the improved water quality of receiving waters because these water bodies are currently impaired by bacteria. The tools and methods described above will effectively monitor performance and progress because they will demonstrate the measured reduction in bacteria concentrations present, as well as impacts to recreation at beaches.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Increase watershed friendly recreational space for all communities

It is anticipated that it will be feasible to meet the monitoring target by 2016 because the curb screens will immediately begin preventing trash, sediment and vegetation from entering storm drains upon installation in 2015. Performance testing will take place as each screen is installed to ensure trash is captured, and quarterly reports will be received from the street sweeping

company with the pounds of trash captured for the first year of implementation. This is well within the expected Project lifespan of 20 years.

Dominguez Channel Trash Reduction

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Dominguez Channel Trash Reduction Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-2.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Project will provide for the installation of unique “Keep Carson Beautiful” automatic retractable screens at the curb face opening of all of the approximately 1,800 catch basins within the City of Carson that drain to the Dominguez Channel. The trash excluders proposed in this Project will prevent trash, leaves, and other debris within the City limits from entering the storm drain system that discharges to the Dominguez Channel. These pollutants will be captured at street level and collected by street sweepers. These activities will be executed in order to meet the Project goals listed in Table 6-2. Project goals will each have performance measures that will be used to quantify and verify project performance. The performance measures used to quantify and verify project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-2: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Quality - Reduced discharge of trash, leaves, and other pollutants from City of Carson to the Dominguez Channel Estuary	Demonstrate reduction in trash, sediment and vegetation reaching the Dominguez Channel	Avoid discharge of 37.5 tons of trash, sediment and vegetation per year	Increase in Pounds of trash collected by street sweepers Reduction in pounds of trash collected by floating booms	Street sweeper reports
Water Quality - Reduced discharge of bacteria to the Dominguez Channel Estuary	Demonstrate reduction in bacterial loading to the Dominguez Channel Estuary	Decrease bacterial loadings	Concentrations of bacteria colonies in the Dominguez Channel Estuary	Water quality sampling
Water Quality - Reduced discharge of toxic pollutants to the Dominguez Channel Estuary	Demonstrate reduction in toxic pollutant loadings to the Dominguez Channel Estuary	Decrease toxic pollutant loadings	Concentrations of toxic pollutants in the Dominguez Channel Estuary	Water quality sampling
Habitat Restoration – Protection of species in the Dominguez Channel Estuary	Demonstrate reduction in trash discharged to Dominguez Channel and Estuary	Decrease trash discharged to wetland and estuarine habitat	Increase in Pounds of trash collected by street sweepers Decrease in pound of trash at floating booms	Street sweeper reports
Flood – Reduced occurrence of street flooding	Demonstrate reduction in localized street flooding	Reduce frequency of localized street flooding	Number of localized street flooding reports per year	Reports of street flooding to the City of Carson

Dominguez Channel Trash Reduction

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Education - Promote, preserve and protect existing beneficial uses of the watershed and encourage future recreational use	Demonstrated increase in public awareness for Dominguez Channel watershed quality issues	Increase public awareness of Dominguez Channel watershed quality issues	Increase in visits to the "Keep Carson Beautiful" website	Website traffic records
Recreational Use – Increase number of visitors and provide support for added beneficial uses	Demonstrate reduction in trash discharged to Dominguez Channel	Decrease trash in waterways	Pounds of trash collected by street sweepers Pounds of trash collected at the trash boom downstream of the City of Carson	Street sweeper reports Beach clean-up results Beach report cards

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-2). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Water Quality - Reduced discharge of trash, leaves, and other pollutants from City of Carson to the Dominguez Channel Estuary

The Project will improve the water quality of receiving waters by capturing 37.5 tons per year of trash, sediment and vegetation at the catch basin debris excluders, and prevent it from entering the storm drains which discharge to the Dominguez Channel. In order to measure the performance outcome of this goal, the avoided discharge of trash, sediment and vegetation will be used. The avoided discharge of trash, sediment and vegetation will be verified by using reports of pounds of material collected by street sweepers and will be recorded for analysis using Excel Spreadsheets.

The monitoring target selected for this Project Goal is the prevented discharge of 37.5 tons of trash per year, sediment and vegetation per year. This target is appropriate to demonstrate the reduced discharge of trash because it is a estimate of the percentage of total trash currently discharged from City of Carson to the Dominguez Channel (i.e., 75% of 50 tons/year) that would be captured by implementing the Project.

Using this performance measure, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater

It is anticipated that it will be feasible to meet the monitoring target by 2017 because the debris excluders will immediately begin preventing trash, sediment and vegetation from entering storm drains upon installation in 2016. Performance testing will take place as each screen is installed to ensure trash is captured, and quarterly reports will be received from the street sweeping company with the pounds of trash captured. This is well within the expected Project lifespan of 20 years.

Water Quality - Reduced discharge of bacteria to the Dominguez Channel Estuary

The Project will improve the water quality of receiving waters by capturing trash, sediment and vegetation at the catch basin debris excluders, and prevent it from reaching storm drains, which is expected to help in preventing the discharge of bacteria to Dominguez Channel Estuary. In order to measure the performance outcome of this goal, the measured decrease in bacterial loadings will be used.

The measured decrease in bacterial loadings will be verified by using water quality sampling data for Dominguez Channel Estuary. The data needed for water quality sampling consists of grab samples taken during storm events at outfalls to the Dominguez Channel Estuary. The County of Los Angeles and all the cities that discharge to the Dominguez Channel and Estuary are preparing a Coordinated Integrated Monitoring Plan (CIMP) to meet the requirements of both the NPDES permit and the Dominguez Channel Toxics TMDL. This CIMP will also include the outfall monitoring for bacteria.

The samples will be sent to a lab which will test the samples for bacterial concentrations and send reports of findings to the City in electronic format. The data will be analyzed after collection using Excel spreadsheets to compare water quality before and after the Project.

The monitoring target selected for this goal is the demonstrated reduction in bacterial loadings in Dominguez Channel Estuary. This target is appropriate to demonstrate the improved water quality of the receiving water. The tools and methods described above will effectively monitor performance and progress because they will demonstrate the measured reduction in bacterial colonies present.

Using this performance measure, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater

It is anticipated that it will be feasible to meet the monitoring target by 2017 because the debris excluders will immediately begin preventing trash, sediment and vegetation from entering storm drains upon installation in 2016, and thus prevent the discharge of bacteria associated with this trash. Performance testing will take place as each screen is installed to ensure trash is captured, and annual reports will be generated to analyze bacteria levels in the Dominguez Channel Estuary. This is well within the expected Project lifespan of 20 years.

Water Quality - Reduced discharge of toxic pollutants to the Dominguez Channel Estuary

The Project will improve the water quality of receiving waters by capturing trash, sediment and vegetation at the catch basin debris excluders, and prevent it from reaching storm drains, which is expected to help in preventing the discharge of toxic pollutants to storm drains and Dominguez Channel Estuary. In order to measure the performance outcome of this goal, the measured decrease in toxic pollutant loadings will be used.

The measured decrease in toxic pollutant loadings will be verified by using water quality sampling data for Dominguez Channel Estuary. The data needed for water quality sampling consists of grab samples taken during storm events at outfalls to the Dominguez Channel Estuary. The samples will be sent to a lab which will test the samples for toxic pollutant concentrations and send reports of findings to the City in electronic format. The data will be analyzed after collection using Excel spreadsheets to compare water quality before and after the Project.

The monitoring target selected for this goal is the demonstrated reduction in toxic pollutant loadings in Dominguez Channel Estuary. This target is appropriate to demonstrate the improved water quality of receiving waters because these water bodies are currently impaired by toxic pollutants. The tools and methods described above will effectively monitor performance and progress because they will demonstrate the measured reduction in toxic pollutant loading.

Using this performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater

It is anticipated that it will be feasible to meet the monitoring target by 2017 because the debris excluders will immediately begin preventing trash, sediment and vegetation from entering storm drains upon installation in 2016, and thus prevent the discharge of toxic pollutants. Performance testing will take place as each screen is installed to ensure trash is captured, and annual reports will be generated to analyze toxic pollutant levels in the Dominguez Channel Estuary. This is well within the expected Project lifespan of 20 years.

Habitat Restoration – Protection of species in the Dominguez Channel Estuary

The Project will improve habitat by implementing the use of debris excluders on catch basins which will prevent the discharge of trash to storm drains that drain to the Dominguez Channel Estuary. In order to measure the performance outcome of this goal, the avoided discharge of

trash, sediment and vegetation to storm drains will be used. The avoided discharge of trash, sediment and vegetation will be verified by using reports of pounds of material collected by street sweepers that will be recorded for analysis using Excel Spreadsheets.

The monitoring target selected for this Project Goal is a decrease in the pounds of trash discharged to wetland and estuarine habitats. This target is appropriate to demonstrate the goal of improving habitat because currently, trash that is washed into storm drains is carried by stormwater to the Dominguez Channel and Dominguez Channel Estuary. The tools and methods described above will effectively monitor performance and progress because the pounds of trash collected by street sweepers will reflect the amount of trash removed from riparian and estuary habitat.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Protect, restore, and enhance natural processes and habitats

It is anticipated that it will be feasible to meet the monitoring target by 2017 because the debris excluders will immediately begin preventing trash, sediment and vegetation from entering storm drains upon installation in 2016. This is well within the expected Project lifespan of 20 years.

Flood – Reduced occurrence of street flooding

The Project will improve flood protection by implementing the use of debris excluders on catch basins to reduce the frequency of localized street flooding caused by storm drain blockage. In order to measure the performance outcome of this goal, the decrease in the frequency of localized street flooding will be used. The frequency of localized street flooding will be verified by using the number of complaints of street flooding made to the City of Carson; this data will be analyzed after collection using Excel spreadsheets.

The monitoring target selected for this Project Goal is the reduction in the frequency of localized street flooding. Using this performance measure, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Maintain and enhance public infrastructure related to flood protection, water resources and water quality

It is anticipated that it will be feasible to meet the monitoring target by 2017 because the debris excluders will immediately begin preventing trash, sediment and vegetation from entering storm drains upon installation in 2016. Localized flooding complaints will be received and recorded throughout the first year of implementation to ensure that the number of cleanouts has decreased. This is well within the expected Project lifespan of 20 years.

Education – Promote, preserve and protect existing beneficial uses of the watershed and encourage future recreational use

The Project will improve education through the installation of debris excluders with the "Keep Carson Beautiful" logo, as well as through on-going public outreach through the "Keep Carson Beautiful" website. In order to measure the performance outcome of this goal, the increase in traffic to the program website will be used. The reports of visitors to the website will be tracked through regular reports from website administrators.

The monitoring target selected for this Project Goal is the demonstrated increase in public awareness of Dominguez Channel watershed quality issues. This target is appropriate to demonstrate improvement in flood protection because it reflects the increase in public education of issues facing the Dominguez Channel watershed. The tools and methods described above will effectively monitor performance and progress because they will reflect the number of people who have visited and are now aware of the "Keep Carson Beautiful" program and the water quality issues it is helping to solve.

It is anticipated that it will be feasible to meet the monitoring target by 2016 because the debris excluders will be installed with the logo, encouraging the public to learn about the program. Reports of website traffic will immediately be available.

Recreational Use – Increase number of visitors and provide support for added beneficial uses

The Project will improve recreation by implementing the use of debris excluders on catch basins which will prevent the discharge of trash to storm drains. In order to measure the performance outcome of this goal, the avoided discharge of trash, sediment and vegetation will be used.

The avoided discharge of trash, sediment and vegetation will be verified by using reports of pounds of material collected by street sweepers that will be recorded for analysis using Excel Spreadsheets. Trash collected from the trash booms at the downstream end of the City of Carson can also be used to verify a reduction in trash affecting recreation adjacent to the Dominguez Channel Estuary. Reports of the pounds of trash collected during trash boom cleanouts from the contractor will be recorded and analyzed using Excel spreadsheets.

The first monitoring target selected for this Project Goal is the prevented discharge of 37.5 tons of trash, sediment and vegetation per year. This target is appropriate to demonstrate the improved water quality of receiving waters because it will directly show that the trash currently impacting the quality of Dominguez Channel and Estuary is being captured and removed before entering the storm drain system.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Increase watershed friendly recreational space for all communities

It is anticipated that it will be feasible to meet the monitoring target by 2017 because the debris excluders will immediately begin preventing trash upon installation, sediment and vegetation from entering storm drains upon installation in 2016. Performance testing will take place as each screen is installed to ensure trash is captured, and quarterly reports will be received from the street sweeping company with the pounds of trash captured, as well as from the contractor who collects trash at the trash booms. This is well within the expected Project lifespan of 20 years.

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Dominguez Gap Spreading Grounds West Basin Percolation Enhancements

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Dominguez Gap Spreading Grounds West Basin Percolation Enhancements Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-3.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Dominguez Gap Spreading Grounds West Basin Percolation Enhancements Project (Project) will remove five to ten feet of clay sediment in the west basin to increase percolation and allow for increased recharge capacity. This clay sediment has impeded the percolation rates of these spreading grounds since they were originally constructed. In addition, the connection between the east and west basins will be realigned as a result of the new configuration of the west basin.

These activities will be executed in order to meet the Project goals listed in Table 6-3. Project goals will each have performance measures that will be used to quantify and verify project performance. The performance measures used to quantify and verify project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-3: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Supply - Improve water supply	Demonstrate effective capture and infiltration of stormwater	Increase percolation to the Central Groundwater Basin by 1,000 AFY, on average	Quantification of flow entering the spreading grounds, rate of percolation in the basin Quantification of groundwater tables compared to baseline	Record of local surface water flow to spreading basin as measured by monitoring equipment Record of groundwater levels at two existing groundwater wells
Water Supply -Improve supply reliability	Reduce dependence on less reliable imported water supplies	Increase use of local surface water supplies by 1,000 AFY and decreased use of imported supplies by 1,000 AFY, on average	Quantification of local surface water and imported water use compared to baseline Quantification of groundwater tables compared to baseline	Record of local surface water flow to spreading grounds as measured by monitoring equipment Record of groundwater water levels at two existing groundwater wells
Delta Demands - Decrease Demands on California Delta	Demonstrate decreased use of imported water	Increase use of local surface water supplies by 1,000 AFY and decreased use of imported supplies by 1,000 AFY, on average	Quantification of imported water use compared to baseline	Record of imported water deliveries to Central Basin pumpers

Dominguez Gap Spreading Grounds West Basin Percolation Enhancements

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Flood - Improve flood protection	Reduction of peak flows during flood events	Increase in percolation capacity of approximately 20 cfs	Instances of localized flooding Quantification of increased percolation capacity	Flood and standing water complaints Record of local surface water flow to spreading grounds as measured by monitoring equipment
Energy Conservation -reduce energy	Reduce energy consumption from conveyance of imported water	Conserve 2,646,000 kWh per year of energy	Quantification of imported water use compared to baseline Quantification of the kWh per AF required to pump/convey imported water to the Los Angeles region	Record of local surface water deliveries and imported water deliveries as measured by LADWP influent flow meters for each source at the water treatment plant Record of energy demand requirements as reported by Metropolitan Water District (MWD)

Dominguez Gap Spreading Grounds West Basin Percolation Enhancements

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Greenhouse Gas Reduction - reduce emissions	Reduce emissions of CO_2 equivalents from conveyance of imported water	Avoid 958 metric tons of CO_2 equivalents per year emitted	Quantification of kWh of energy conserved by the offset of SWP imported water Quantification of CO_2 equivalents per kWh of energy	Record of local surface water deliveries and imported water deliveries as reported by Central Basin Watermaster. Climate Action Registry, General Reporting Protocol

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-3). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Improve Water Supply, Supply Reliability, and Decrease Demands on California Delta

The Project goals to improve water supply, improve supply reliability and decrease demands on the California Delta are linked for this project. By recharging local surface water to the Central Groundwater Basin, additional groundwater supply will be made available to pumpers. This supply is expected to offset the less reliable State Water Project (SWP) supply and thus reduce demands on the Delta. Therefore, the same targets, performance indicators and tools can be used to measure progress in meeting these three performance measures.

In order to measure the performance outcome of the goals of improving water supply, reliability and decreased demands on the Delta, the volume of water entering the spreading grounds and being infiltrated to the groundwater basin will be measured, and can be compared against baseline use. Imported water data will be collected from Central Basin Watermaster Annual Reports.

Measurements of water diversions to the spreading grounds and infiltration will be made possible through the existing flow sensor installed upstream and downstream of the intake of the spreading grounds to measure the amount of water captured and bypassed. The flow sensor is shown in **Figure 6-1.** This data will be recorded with new monitoring equipment to be installed as a part of the Project. The data will ultimately be collected in a database for further analysis using Excel spreadsheets. In addition to the flow monitoring, groundwater water levels will be recorded at two existing groundwater wells near the spreading grounds. The groundwater water levels will be compared with baseline to verify increase in groundwater recharge. The two existing groundwater wells are shown in **Figure 6-2.**

Figure 6-1: Inflow Gage Location

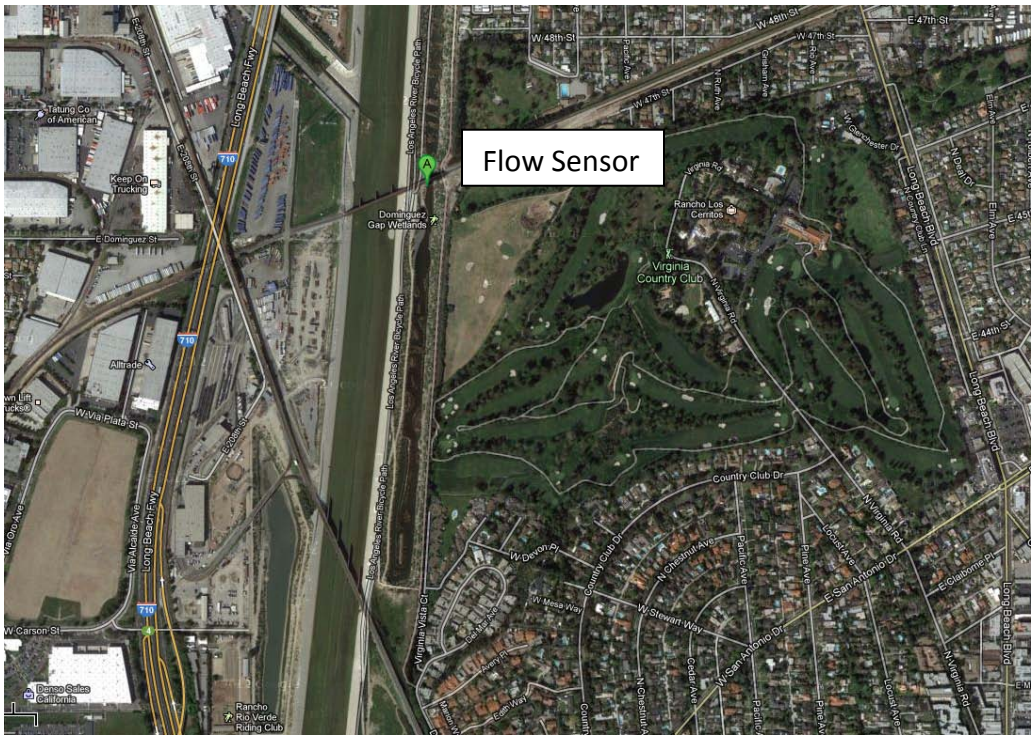
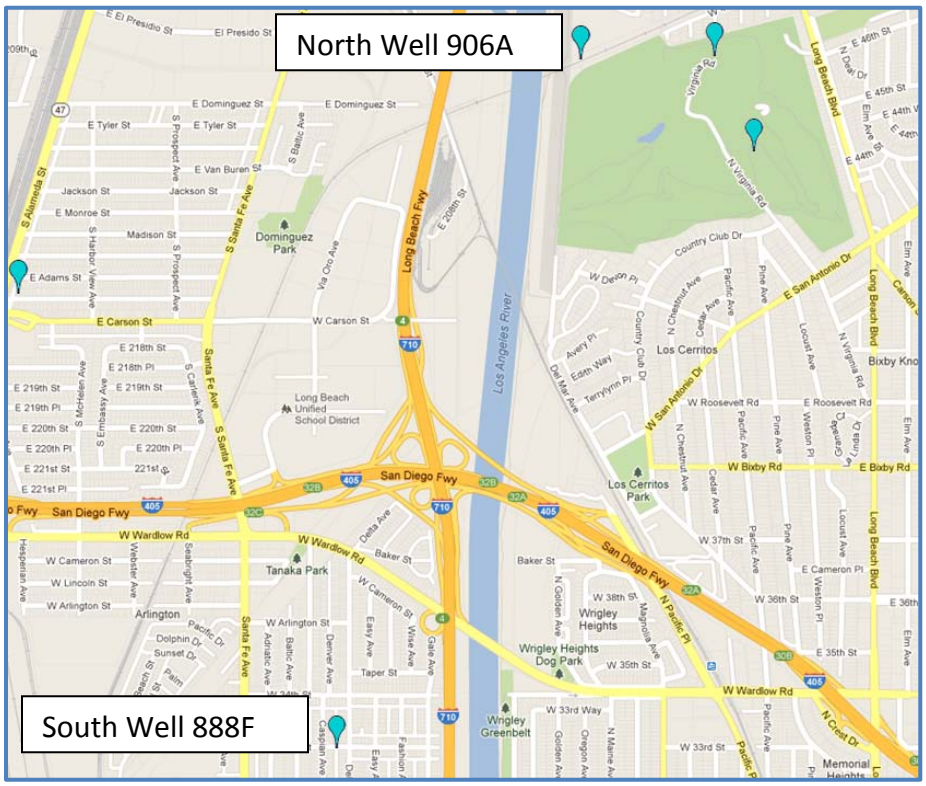


Figure 6-2: Groundwater Well Location



The monitoring targets selected for these Project Goals are recharge of 1,000 AFY of stormwater, on average, from the Los Angeles River to the Central Groundwater Basin, and a concurrent reduction in imported water use from the SWP of 1,000 AFY. These targets are appropriate to demonstrate the increase of local water supply available from groundwater as they will demonstrate the increase in local water availability and usage. The tools and methods described above will effectively monitor performance and progress because flow monitoring equipment will directly measure the quantity and movement of water if properly maintained and calibrated, and actual usage will indicate progress towards decreasing imported demand.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Optimize local water resources to reduce the Region's reliance on imported water.

It is anticipated that it will be feasible to meet the monitoring target by 2016 because project construction is anticipated to be complete by September 2015 and performance testing is expected to be complete by October 2015, in time for the rainy season. This is well within the expected Project lifespan of 50 years.

Improve Flood Protection

The Project will reduce flooding potential from overflow of the spreading grounds by removing five to ten feet of a clay layer in the west basin of the Dominguez Gap Spreading Grounds. In order to measure the performance outcome of this goal, the volume of water entering the spreading grounds and being infiltrated to the groundwater basin will be measured, and can be compared against baseline use.

Measurements of water diversions to the spreading grounds and infiltration will be made possible through the installation of flow sensors installed at the intake of the spreading grounds to measure the amount of water captured. This data will be recorded with new monitoring equipment to be installed as a part of the Project. In addition, there are flow sensors installed upstream and downstream of the intake of the spreading grounds to measure the amount of water captured and bypassed. The data will ultimately be collected in a database for further analysis using Excel spreadsheets.

The monitoring targets selected for this Project Goal is an increase in percolation of 20 cfs. This target is appropriate to demonstrate improved flood protection because it will reflect a 20 cfs reduction in flow in the Los Angeles River. The tools and methods described above will

effectively monitor performance and progress because flow monitoring equipment will directly measure the quantity and movement of water if properly maintained and calibrated.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Maintain and enhance public infrastructure related to flood protection , water resources and water quality

It is anticipated that it will be feasible to meet the monitoring target by 2016 because project construction is anticipated to be complete by September 2015 and performance testing is expected to be complete by October 2015, in time for the rainy season. This is well within the expected Project lifespan of 50 years.

Increase Energy Conservation and Reduce Greenhouse Gas Emissions

The Project will increase energy conservation and reduce greenhouse gas emissions by reducing the amount of imported water delivered through an increase in the amount of groundwater available, as described above. Imported water delivery requires far more energy than groundwater pumping, as discussed in Attachment 7. In order to measure the performance outcome of these goals, the reduction in energy usage and reduction in greenhouse gasses emitted will be used. The reduction in energy usage will be verified by using estimates of energy used per acre-foot to deliver imported water and the energy used to pump groundwater in relation to the amount of local surface water recharged at the Dominguez Gap Spreading Grounds. The data needed for these calculations will consist of local surface water recharged and conversion factors for the amount of energy needed to deliver these water supplies, and conversion factors for greenhouse gas emissions for a given kWh of energy; the data will be analyzed after collection using a database and Excel spreadsheets. Additionally, the LACFCD will keep records of SWP energy demand requirements by SWP to quantify energy conservation.

The monitoring targets selected for these Project Goals are 2,646,000 million kWh per year and 958 metric tons of CO_2 equivalents emitted per year. These targets are appropriate to demonstrate the increase in energy conservation and reduction in greenhouse gas emissions because they will directly demonstrate the energy conservation and greenhouse gas emission reductions made possible through the project.

It is anticipated that it will be feasible to meet the monitoring target by 2016 because project construction is anticipated to be complete by September 2015 and performance testing is

expected to be complete by October 2015, in time for the rainy season. This is well within the expected Project lifespan of 50 years.

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Foothill Municipal Water District Recycled Water Project

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Foothill Municipal Water District Recycled Water Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify Project performance with respect to the Project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-4.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Foothill Municipal Water District (FMWD) will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Project will consist of a suite of activities designed to treat a combination of municipal wastewater, stormwater and urban runoff to Title 22 recycled water quality levels using membrane bioreactor (MBR) technology for recharge at new infiltration galleries. The Project also includes conservation education and outreach components. These activities will be executed in order to meet the Project goals listed in Table 6-4. Project goals will each have performance measures that will be used to quantify and verify Project performance. The performance measures used to quantify and verify Project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-4: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Supply - Reduce dependence on imported water	Demonstrate production of recycled water for beneficial use Demonstrate effective capture and infiltration of recycled water as well as stormwater and urban runoff	Decrease imported water usage by 318 AFY Capture, treat and use 318 AFY stormwater, urban runoff and wastewater flow	Quantitative Indicators: amount of effluent/rate of flows out of the MBR, rate of percolation into the basin	Lysimeters, water quality sampling, surveys, water meter
Water Quality - Reduce urban runoff and stormwater flows to LA River	Decrease in urban runoff reaching LA River and improved water quality in receiving waters	Decrease urban runoff and stormwater flows	Qualitative Indicator: connection to urban runoff and stormwater collection system	As-built drawings
Public Outreach - Increase public outreach	Demonstrate the infiltration galleries role using a 3D model Develop a conservation outreach campaign	Provide environmental awareness and stewardship Increase conservation practices in the community	Qualitative Indicators: input from stakeholders on development of MBR site and infiltration galleries within the LCHS athletic fields, increase in participation from community in dialogue concerning watershed health & water supply cycle in service area	Community surveys

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Education - Increase education	Provide an educational benefit to the Cal Poly Pomona interdisciplinary team Create an education curriculum for LCUSD teachers		Qualitative Indicators: Establish updated water education curriculum for LCUSD highlighting recycled water and groundwater	Distribution of final materials Teacher surveys
Energy Conservation - Reduce energy consumption	Reduce energy consumption from conveyance of imported water	Conserve 594,335 kWh per year of energy	Quantification of imported water use compared to baseline Quantification of the kWh per AF required to pump/convey SWP imported water to FMWD Quantification of kWh of energy conserved by the offset of SWP imported water	Record of imported water deliveries as measured by FMWD flow meter at its lone MWD connection (near the Rose Bowl located in Pasadena, CA) Record of SWP energy demand requirements as reported by SWP
GHG Reduction - Reduce GHG emissions	Reduce emissions of CO_2 equivalents from conveyance of imported water	Avoid 195 metric tons of CO_2 equivalents per year	Quantification of imported water use compared to baseline Quantification of CO_2 equivalents per kWh of energy	Record of imported water deliveries as measured by FMWD flow meter at its lone MWD connection Record of SWP energy demand requirements as reported by SWP

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-4). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Reduce Dependence on Imported Water/Diversify Supplies

The Project will reduce dependence on imported water and diversify water supplies by implementing recharge of 318 AFY through combined recycled water consisting of municipal wastewater, stormwater and urban water runoff via infiltration galleries. In order to measure the performance outcome of this goal, the quantity of water treated by the MBR, the quantity of water recharged at the infiltration galleries, and the quantity of water pumped from the groundwater basin will be used.

The quantities of water treated, infiltrated, and pumped will be verified by using (1) a metering location at the MBR facility that uses a flow meter, (2) lysimeters installed at the infiltration gallery locations, and (3) flow meters at pump wellheads. The data collected from the flow meters and lysimeters will be documented using a groundwater account that will be established for FMWD by the Raymond Basin Watermaster. Water will be sold to FMWD member agencies that have rights to pump in the groundwater basin from this account. This additional groundwater pumping will be metered at the wellhead. This information will be kept in electronic format for easy reference and posted on FMWD's website. Additionally, recharge and pumping information will continue to be maintained by the Raymond Basin Watermaster and submitted to the court annually as part of the stipulation of the adjudication.

The data needed for flow meters, lysimeters, and wellhead meters consist of totalizer readings and numeric information about percolation rates; the data will be analyzed after collection in Excel spreadsheet format or in a Microsoft Access database.

The monitoring target selected for this Project Goal is recharge of 318 AFY of recycled water consisting of municipal wastewater, urban runoff, and stormwater. This target is appropriate to demonstrate the reduced dependence on imported water and diversification of water supplies because it reduces the overall need to purchase imported water and adds one (1) new water source (recycled water) to the FMWD supply portfolio. The tools and methods described above will effectively monitor performance and progress because flow meters and lysimeters directly measure the quantity and movement of water if property maintained and calibrated.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Optimize local water resources to reduce the Region's reliance on imported water
- Improve groundwater basin health through recharge

It is anticipated that it will be feasible to meet the monitoring target by 2020 because Project construction is anticipated to be complete by May 2016 and performance testing is anticipated to be complete by October 2016. Therefore it will be possible to obtain three years of monitoring data between 2017 and 2020 to demonstrate that the target has been met. This is well within the expected Project lifespan of 50 years.

Water Quality - Reduce urban runoff and stormwater flows to LA River

The Project will reduce urban runoff and stormwater flows by 38 AFY to the Los Angeles River. Urban runoff and stormwater flows will be piped into the MBR plant, treated and infiltrated in the groundwater basin. In order to measure the performance outcome of this goal, as-built plans will confirm the connection to capture urban runoff and stormwater flows.

The monitoring target selected for this Project Goal is to capture 38 AFY of urban runoff and stormwater flows. This can be verified with as-built plans after construction. The tools and methods described above will effectively monitor performance and progress because the modifications have been designed in order to capture urban runoff and stormwater flows, and therefore, if constructed per specifications, flows to the Los Angeles River will be reduced, reducing pollutant loading in the River.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Comply with water quality regulations (including TMDLs) by reducing the amount of urban runoff and stormwater

It is anticipated that it will be feasible to meet the monitoring target by 2020 because Project construction is anticipated to be complete by May 2016 and performance testing is anticipated to be complete by October 2016. Therefore it will be possible to obtain three years of monitoring data between 2017 and 2020 to demonstrate that the target has been met. This is well within the expected Project lifespan of 50 years.

Increase Public Outreach

The Project will increase public outreach by developing a 3D model (i.e., a computer model of the infiltration galleries for educational purposes on an interactive screen), developing a conservation outreach campaign and developing a section on the FMWD website. In order to measure the performance outcome of this goal, public tours and community surveys will be conducted. The number of public tours will be verified by using an electronic tracking system that will report the information on the FMWD website. The feedback from tour participants will be verified by using surveys that will be performed regularly to determine long-term benefits. The data needed for the tracking system consist of tour dates and attendees reported by FMWD staff; the data will be analyzed after collection using Excel spreadsheets or in a Microsoft Access database. Additionally, retail water deliveries throughout FMWD are tracked monthly and reported to the FMWD Board of Directors. This practice will continue as part of FMWD's conservation efforts of tracking reduction in demands. The education and conservation components of this project will be documented with reference to Best Management Practices (BMPs) that FMWD is obligated to implement as part of its memorandum of understanding (MOU) with the California Urban Water Conservation Council (CUWCC).

The monitoring targets selected for these Project Goals are 3 tours and approximately 100 surveys in order to promote water conservation through education programs. An expansion in the tour program may be warranted should initial monitoring targets be met with FMWD satisfaction and growing demand from the public for the tours. These targets are appropriate to demonstrate education because they will reflect the amount of public participation in tour programs.

Increase Education Outreach

The Project will increase education outreach by providing an educational benefit to the Cal Poly Pomona interdisciplinary team, creating an education curriculum for LCUSD teachers, and providing tours to elementary students. In order to measure the performance outcome of this goal, the deliverables from the Cal Pomona team, the number of student tours conducted and the updated water education curriculum for LCUSD will be used. The number of student tours will be verified by using an electronic tracking system that will report the information on the FMWD website. The data needed for the tracking system consist of student tour dates and attendees reported by FMWD staff; the data will be analyzed after collection using Excel spreadsheets. The water education curriculum for LCUSD will highlight recycled water and

groundwater. Additionally, FMWD plans to maintain ongoing research collaborations with the Cal Poly Pomona interdisciplinary team past the completion of this project.

The monitoring target selected for these Project Goals are the Cap Poly Pomona deliverables when Project is completed, conducting 10 student tours in a year and an update water education curriculum for LCUSD. These targets are appropriate to demonstrate the increased education outreach performance measures because they will directly reflect the amount of student participation in tour programs.

Energy Savings

The Project will reduce energy consumption from conveyance of SWP imported water by offsetting imported water with local water supplies. The Project will conserve 594,335 kWh per year of energy. In order to measure the performance outcome of this goal, energy bills will be used. Both the power and cost savings data will be normalized against the MBR plant flows. The data will then be compared with energy usage to convey imported water, using the same amount of annual recycled water flow produced at the MBR plant, using an Excel spreadsheet.

The monitoring target selected for this Project Goal is a net savings of 594,335 kWh per year. This target is appropriate to demonstrate the reduction in power consumption because it will show the amount of power used and saved when compared with previous power usage for the same amount of water supply provided.

Greenhouse Gas (GHG) Reduction

The Project will offset imported water demands with local surface water supplies by avoiding 195 metric tons of CO_2 (a GHG) equivalents per year generated by transporting imported SWP water to the GLAC Region. Reduction of CO_2 emissions as a result of the Project will be quantified by recording imported water deliveries as measured an FMWD meter located at the FMWD's sole connection to MWD.

The Project will reduce GHG emissions by 195 metric tons per year by constructing an MBR plant and producing 318 AFY of recycled water flow. In order to measure the performance outcome of this goal, energy bills will be used to calculate the GHG emissions. The GHG calculations will be normalized against plant flows. The data and calculations will be compared with the data obtained before the implementation of the Project using an Excel spreadsheet.

The monitoring target selected for this Project Goal is cost savings from power usage. This target is appropriate to demonstrate the reduction in power consumption because it will show the amount of power consumed. The tools and methods described above will effectively

monitor performance and progress because the energy bills will demonstrate the amount of power saved for the same amount of water provided.

GHG reductions (in CO_2 equivalents) will be determined at the treatment plant level based on a measured decrease in overall power consumption as well as at the regional level based on the increased amount of recycled water produced/reused, which would offset the power required to supply imported water to the region.

Marsh Park, Phase II

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Marsh Park Phase II Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-5.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Project will consist of expanding the existing park to create an additional three acres of park land in a park-poor neighborhood on the banks of the soft-bottom reach of the Los Angeles River. These activities will be executed in order to meet the Project goals listed in Table 6-5. Project goals will each have performance measures that will be used to quantify and verify project performance. The performance measures used to quantify and verify project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-5: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Supply – Offset of imported water demand from reduced irrigation demand	Water Savings	1.01 acre-feet/year of water demand reduction	Quantitative Indicators: compare actual water usage with maximum water allowance per AB1881	Water consumption records for this project will be compared to Maximum water allowance per AB 1881
Water Supply – Offset of imported water from Increased capture and recharge of stormwater	Increase stormwater capture and groundwater recharge	Reduce and reuse dry and wet weather flows of stormwater runoff by 2.14 acre-feet/year (698,429 gallons of stormwater will be filtered per year)	Quantitative Indicators: compare actual water usage with maximum water allowance per AB 1881	Water consumption records for this project will be compared to Maximum water allowance per AB 1881
Delta Demands - decreased	Reduce Delta Demands	Reduce Delta Demands by 3.15 AFY	Qualitative Indicators: Using stormwater and runoff for park irrigation	volumetric sensor
Flood Protection – Increased detention during a 50-year storm	Filter, capture and reuse stormwater on-site Reduce stormwater runoff	Demonstrate capture 1.5 acre-feet of stormwater during a 50-year storm	Quantitative Indicators: Compare runoff of dry and wet weather flows into the Los Angeles River before and after implementation of the Project	Volume of runoff of dry and wet weather flows into the Los Angeles River from a permanently installed sensor located at the project outflow point.

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Flood Protection – Increased stormwater drainage of tributary area	Improve stormwater drainage and reduce flood risk upstream	Demonstrate increase stormwater drainage for 5.8 acres of on-site and off-site stormwater Demonstrate capture and reuse of 2.14 acre-feet of stormwater per year	Quantitative Indicators: measure outflow using a volumetric sensor to the Los Angeles River	volumetric sensor
Open Space - Creation of riparian habitat	Increased acreage of riparian habitat	Demonstrate restoration of 1.25 acres of riparian habitat, within the 3 acres of park	Native species habitat acreage	Field surveys will be done by staff and will include observation, photo documentation and the on-site measurement of acreage of habitat restoration.
Open Space – Creation of open space and recreation	Increase acres of watershed park land and open space in an under-served community	Demonstrate 3 acres of park land use versus current industrial land	Quantitative Indicators: on-site measurement of acreage of open space, park space and land use conversion. Qualitative Indicators: Before and After photo-documentation	Field survey
Energy Conservation – Reduce power from offset of	Reduce power consumption	Demonstrate power reduction by 8,266 kWh	Quantitative Indicators: Cost savings (in dollars) and power	Excel spreadsheet

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
SWP water		per year	consumption savings (in kWh)	
Greenhouse Gas Reduction – Reduce emissions	Reduce GHG emissions	Demonstrate GHG emission reduction by 2 MT CO_2 equivalents per year	Quantitative Indicators: CO_2 equivalents from power consumption savings (in kWh)	Excel spreadsheet

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-5). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Offset of Imported Water Demands - Reduced Irrigation Demands

The Project will offset imported water supply by reducing water demand of 1.01 AFY for irrigation. In order to measure the performance outcome of this goal, the water records for irrigating the park will be used. The water records will document the amount of stormwater that was used instead of potable water. Irrigation for the park will only be supplied from dry and wet weather runoff. The data needed to monitor the water usage is a flow meter which measures the amount of water used. On a yearly basis, staff will collect water consumption records (water bills) and compare the consumption rates to the maximum water use allowed by Assembly Bill (AB) 1881.

The monitoring target selected for this Project Goal is reducing irrigation demands by 1.01 AFY. This target is appropriate to demonstrate the increase in new water supply because it reduces the dependence on imported water. The tools and methods described above will effectively monitor performance and progress because the water consumption records will directly measure the quantity of water used if properly maintained and calibrated.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Optimize local water resources to reduce the Region's reliance on imported water

It is anticipated that it will be feasible to meet the monitoring target by 2016 since the Project construction will be completed by late 2014, leaving a full year of operation to demonstrate the Project objectives. This is well within the expected Project life of 50 years.

Offset of Imported Water Demands - Increased Stormwater Capture and Groundwater Recharge

The Project will offset imported water demands by capturing, filtering, and reusing 2.14 AFY of stormwater on site. In order to measure the performance outcome of this goal, the quantity of stormwater runoff into the Los Angeles River will be reduced. The decreased runoff of dry and wet weather flows into the Los Angeles River will be verified by using a permanently installed volumetric sensor located at the Project outflow point to the Los Angeles River. The measurements taken during wet and dry weather will confirm if the designed capture, reuse, recharge and filter rates are meeting their designed targets. The sensor will be installed in the northwest corner of the park where there is an existing culvert, which will be reused by the Project. See map for exact location. The data will then be analyzed after collection using an Excel spreadsheet. The data will also be compared with dry and wet weather flows before the Project is implemented in order to verify a capture of 1.5 AFY of stormwater during a 50-year storm and quantifying the amount of stormwater that is filtered into the ground.

The monitoring target selected for this Project Goal is reduce and reuse dry and wet weather flows of stormwater runoff by 2.14 AFY. This target is appropriate to demonstrate the reduction of runoff into the Los Angeles River because it will capture, filter and reuse the stormwater flow and obstruct the flow from entering the river. The tools and methods described above will effectively monitor performance and progress because the permanent flow meter directly measures the quantity and movement of water if properly maintained and calibrated.

Flood Protection – Increase detention during a 50-year storm and increase stormwater drainage of tributary area

The Project will enhance flood protection by expanding the existing park to capture and reuse 2.14 AFY of stormwater and capture 1.5 AFY of stormwater during a 50-year storm event. In order to measure the performance outcome of this goal, runoff of dry and wet weather flows into the Los Angeles River. The runoff will be measured using a permanently installed

volumetric sensor located at the Project outflow point to the Los Angeles River. The location of the volumetric sensor is shown in **Figure 6-3**. The measurements taken during wet and dry weather will confirm if the designed capture, reuse, recharge and filter rates are meeting their designed targets. The sensor will be installed in the northwest corner of the park where there is an existing culvert, which will be reused by the project. See map below for exact location.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater
- Protect and improve groundwater and drinking water quality

It is anticipated that it will be feasible to meet the monitoring target by 2016 since the Project construction will be completed by late 2014, leaving a full year of operation to demonstrate the Project objectives. This is well within the expected Project life of 50 years.

Figure 6-3: Location of Volumetric Sensor

The monitoring target selected for this Project Goal is to reduce runoff of 2.14 AFY into the Los Angeles River. This target is appropriate to demonstrate the increase in flood protection because lower flows into the Los Angeles River will decrease flood damages downstream. The tools and methods described above will effectively monitor performance and progress because it will measure the flow with the Project and before implementation of the Project to provide a baseline for flow capture.

Open Space – Creation of Riparian Habitat

The Project will increase acreage of riparian habitat by expanding the existing park and restoring 1.25 acres of riparian habitat. In order to measure the performance outcome of this goal, the amount of native species habitat acreage will be measured. The increase in open space and recreation will be verified by field surveys performed by staff. Field surveys will include observation, photo documentation and the on-site measurement of acreage of habitat restoration.

The monitoring target selected for this Project goal is to restore 1.25 acres of riparian habitat. This target is appropriate to demonstrate the enhancement of natural habitat because it will show the expansion of the riparian habitat along the Los Angeles River. The tools and methods described above will effectively monitor performance and progress because they will measure the amount of riparian habitat restored.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Protect, restore, and enhance natural processes and habitats – This will be measured and demonstrated with field survey and photographs.

It is anticipated that it will be feasible to meet the monitoring target by 2016 since the Project construction will be completed by late 2014, leaving a full year of operation to demonstrate the Project objectives. This is well within the expected Project life of 50 years.

Open Space – Creation of Open Space and Recreation

The Project will create open space and recreation by expanding the existing park with 3 acres of watershed park land and 0.2 acres of open space, free-play meadow. In order to measure the performance outcome of this goal, the amount of industrial land converted to park space will be measured. The increase in open space and recreation will be verified by photographs and field surveys. Photographs before and after the Project is implementation will document the creation of open space and recreation.

The monitoring target selected for this Project goal is to create 3 acres of watershed park land and 0.2 acres of open space. This target is appropriate to demonstrate the enhancement of open space and recreation because it replaces existing industrial land use in an under-served community. The tools and methods described above will effectively monitor performance and progress because they will measure the amount of industrial land converted into natural park land and recreation.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Increase watershed friendly recreational space for all communities

It is anticipated that it will be feasible to meet the monitoring target by 2016 since the Project construction will be completed by late 2014, leaving a full year of operation to demonstrate the Project objectives. This is well within the expected Project life of 50 years.

Energy conservation

The Project will reduce the energy consumption by 8,266 kWh per year. In order to measure the performance outcome of this goal, energy bills will be used. The data will then be compared with energy usage before implementation of the Project using an Excel spreadsheet.

The monitoring target selected for this Project goal is reduced power usage. This target is appropriate to demonstrate the reduction in power consumption because it will show the amount of power saved. The tools and methods described above will effectively monitor performance and progress because it will directly show the amount of power used and saved when compared with using imported water for the same amount of irrigation needed.

Greenhouse gas (GHG) reduction

The Project will reduce GHG emissions by 2 metric tons of CO_2 equivalents per year by reusing stormwater for irrigation instead of imported water. In order to measure the performance outcome of this goal, energy bills will be used to calculate the GHG emissions. The data and calculations will be compared with the energy and GHG emissions if imported water was used to irrigate the park. The data will be analyzed using an Excel spreadsheet.

The monitoring target selected for this Project goal is reduced power usage. This target is appropriate to demonstrate the reduction in power consumption because it will show the amount of power saved. The tools and methods described above will effectively monitor performance and progress because the energy bills will demonstrate the amount of power used and saved when compared with previous power usage for the same amount of recycled water produced.

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Oxford Retention Basin Multi-Use Enhancement Project

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Oxford Retention Basin Multi-Use Enhancement Project will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-6.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the Project
- Performance indicators – measures to evaluate change that is a direct result of the Project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Project will consist of implementation of a number of improvements that will reduce flooding in the area surround the Oxford Retention Basin, improve the quality of runoff, and increase native habitat and recreational features surrounding the Retention Basin. These improvements will include:

- Installation of a 2-foot high parapet wall to increase the capacity of the retention basin
- Installation of a vegetated circulation berm
- Installation of trash best management practices (BMPs) at the outlets of storm drains that drain to the basin
- Construction of bio-swales
- Establishment of native plants

- Removal of contaminated soils
- Installation of trail and observation areas

These improvements are expected to yield the flood protection, water quality, habitat and recreation benefits described below.

These activities will be executed in order to meet the Project goals listed in Table 6-6. Project goals will each have performance measures that will be used to quantify and verify Project performance. The performance measures used to quantify and verify Project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-6: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Flood Protection - Reduce localized flooding	Demonstrate reduction in nuisance flooding in the area around the Oxford Retention Basin Increase retention volume of basin	Retention of a 100 year storm event Increase of 20 AF	Assessment of post-construction condition to make sure localized flooding issues have been resolved by catch basin modifications. Quantification of increased retention volume	Post-construction condition As-built plans
Water Quality - Improve surface water quality	Demonstrate improvements to surface water quality in the Marina del Rey back basins	Decrease in bacteria levels Decrease in toxics levels	Decrease in bacteria levels from water quality sampling Decrease in toxics levels from water quality sampling	Water quality sampling
Habitat - Increase native habitat	Demonstrate increase in native habitat area in the area surrounding the Oxford Retention Basin	10 acres of native habitat	Amount of native habitat created	As-built plans

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Recreation - Increase recreation area	Demonstrate increase in recreation area in the area surrounding the Oxford Retention Basin Demonstrate increase in visitor hours	3,500 linear feet of trail 6 observation areas	Linear feet of trail created Number of observation areas created Number of annual visitors logged	As-built plans

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-6). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Reduce Localized Flooding

The Project will reduce localized flooding by implementing the installation of a 2-foot high parapet wall which will increase the capacity of the retention basin and provide protection nuisance flooding. In order to measure the performance outcome of this goal, post construction conditions to confirm to make sure localized flooding issues have been resolved by catch basin modifications.

The monitoring target selected for this Project Goal is capture of the 100-year storm. This target is appropriate to demonstrate the reduction in localized flooding because the retention basin is currently able to capture the 50-year storm, after which nuisance flooding can occur. Another target for this Project Goal is the addition of 20 AF of retention capacity in the basin. This can be verified with as-built plans after construction. The tools and methods described above will effectively monitor performance and progress because the modifications have been designed in order to capture the 100-year storm, and therefore, if constructed per specifications, is expected to prevent nuisance flooding.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Maintain and enhance public infrastructure related to flood protection, water resources and water quality

It is anticipated that it will be feasible to demonstrate the increased retention capacity by 2015 because construction on the retention basin improvements will be completed by November 2014, and post-construction conditions will be confirmed by February 2015. This is well within the expected Project lifespan of 50 years. It is unknown when the next 100-year storm will occur and so it is not possible to specify when the capacity to capture this storm will be demonstrated.

Improve Surface Water Quality

The Project will improve surface water quality by installing a vegetated circulation berm, installation of trash BMPs, and construction of bio-swales. In order to measure the performance outcome of this goal, decreases in the concentrations of bacteria and toxics will be used. As part of the project, a monitoring plan is being developed. The decrease in concentrations of bacteria and toxics will be verified by using water quality samples from 9 Bacterial TMDL monitoring locations in Marina del Rey Back Basins. The samples will be sent to a lab which will test the samples for bacterial concentrations. The following standards will be used:

- Sampling Methods: EPA accepted sampling methods will be used for this study. The Consultant will have a Quality Assurance and Quality Control procedure.
- Laboratory Methods: Regulatory approved test methods will be identified and used by the laboratory in the Quality Assurance and Quality Control procedure.

The results of these sampling events will be collected, compiled, and analyzed by the Los Angeles County Flood Control District (LACFCD) using Excel spreadsheets to compare water quality before and after the Project.

The monitoring target selected for this Project Goal is the demonstrated reduction in bacteria and toxics concentrations in the Marina del Rey back basins. This target is appropriate to demonstrate improved surface water quality because measurement of these constituents will signify the overall improvement of quality in the receiving water bodies relative to TMDLs. The tools and methods described above will effectively monitor performance and progress because they represent actual measurements of constituent concentrations by a certified laboratory.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater – The LACFCD will complete regular water quality monitoring in the Marina del Rey back basins for this Project to report progress on meeting this goal through progress reporting.

It is anticipated that it will be feasible to meet the monitoring target by 2015 because construction completion at the end of 2014 will allow for monitoring of water quality at the site for one winter season. Regular draining of the site to Marina del Rey after storms will allow for monitoring on the effects of the retention basin improvements on water quality to the marina. This is well within the expected Project lifespan of 50 years.

Increase Native Habitat

The Project will increase native habitat by removing contaminated soils from the site and establishing native plants in the area to create 10 acres of native habitat. In order to measure the performance outcome of this goal, the actual amount of native habitat area created surrounding the Oxford Retention Basin will be used. The increase in native habitat area will be verified by using the actual area created as determined by as-built plans.

The monitoring target selected for this Project Goal is the creation of 10 acres of native habitat. This target is appropriate to demonstrate the increase in native habitat because there is currently no native habitat on-site, therefore any creation of native habitat created during Project construction will provide a habitat benefit. The tools and methods described above will effectively monitor performance and progress because they will directly measure the area of native habitat created.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Protect, restore, and enhance natural processes and habitats – The establishment of native plants on-site will provide habitat where there currently is none. The measurement of the area of native habitat created by this Project will directly reflect the enhancement or restoration of habitat.

It is anticipated that it will be feasible to meet the monitoring target by 2015 because the native habitat created is expected to begin providing benefits immediately after construction. This is well within the expected Project lifespan of 50 years.

Increase Recreation Area

The Project will increase recreation area by installing 3,500 linear feet of trails and six observation areas around the Oxford Retention Basin. In order to measure the performance outcome of this goal, the constructed length of trails and constructed number of observation areas will be used, and will be confirmed through the use of as-built plans.

The monitoring target selected for this Project Goal is feet of trail created and number of observation areas created. This target is appropriate to demonstrate the increase in recreation area. The tools and methods described above will effectively monitor performance and progress because they will directly reflect the increase in recreation area created.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Increase watershed friendly recreational space for all communities

It is anticipated that it will be feasible to meet the monitoring target by 2015 because the recreational amenities listed above will be available for use immediately following construction. This is well within the expected Project lifespan of 50 years.

Pacoima Spreading Grounds Improvements

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Pacoima Spreading Grounds Improvements Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-7.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Pacoima Spreading Grounds Improvements Project (Project) proposes to make several improvements to the Pacoima Spreading Grounds to improve percolation of stormwater, as well as improve downstream water quality and improve flood protection. These improvements include: replacement of the existing radial gate with an inflatable rubber dam, installation of telemetry, installation of flow measurement equipment, replacement of the intake canal with underground pipes, removal of sediment and clay lenses, and combining and deepening of multiple spreading basins.

These activities will be executed in order to meet the Project goals listed in Table 6-7. Project goals will each have performance measures that will be used to quantify and verify project performance. The performance measures used to quantify and verify project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-7: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Supply - Improve water supply	Demonstrate effective capture and infiltration of stormwater	Increase percolation to the San Fernando Groundwater Basin by 10,500 AFY, on average	Quantification of flow entering the spreading basin, rate of percolation info the basin	Record of local surface water flow to spreading basin as measured by monitoring equipment
Water Supply - Improve supply reliability	Reduce dependence on less reliable imported water supplies	Increase use of local surface water supplies by 10,500 AFY and decreased use of SWP imported supplies by 10,500 AFY, on average	Quantification of local surface water and imported water use compared to baseline	Record of local surface water flow to spreading basin as measured by monitoring equipment
Water Supply - Decrease Demands on California Delta	Demonstrate decreased use of imported water from the SWP	Increase use of local surface water supplies by 10,500 AFY and decreased use of SWP imported supplies by 10,500 AFY, on average	Quantification of imported water use compared to baseline	Record of imported water deliveries to the City of Los Angeles
Energy Conservation - Reduce energy consumption	Reduce energy consumption from conveyance of imported water	Conserve 27.6 million kWh per year of energy	Quantification of imported water use compared to baseline Quantification of the kWh per AF required to pump/convey SWP imported water to Los Angeles	Record of local surface water deliveries and imported water deliveries as measured by LADWP influent flow meters for each source at the water treatment plant Record of SWP energy demand requirements as reported by SWP

Pacoima Spreading Grounds Improvements

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Greenhouse Gases - Reduce greenhouse gas emissions	Reduce emissions of CO_2 equivalents from conveyance of imported water	Avoid 9,047 metric tons of CO_2 equivalents per year emitted	Quantification of kWh of energy conserved by the offset of SWP imported water Quantification of CO_2 equivalents per kWh of energy	Record of local surface water deliveries and imported water deliveries as measured by PWD influent flow meters for each source at the water treatment plant Climate Action Registry, General Reporting Protocol
Water Quality - Improve water quality	Demonstrate improved surface water quality in Tujunga Wash	Decrease ammonia loading by 50 pounds per day Decrease total coliform bacteria loading by 11,000 billion colonies per day and E. coli by 180 billion colonies per day Decrease dissolved copper loading by 1.8 pounds per day, and total recoverable copper loading by 2.4 pounds per day	Water quality data of Tujunga Wash	Water quality sampling
Flood Protection - Improve flood protection	Reduction of peak flows during flood events	Increase in percolation capacity of approximately 77 cfs	Instances of localized flooding Quantification of increased percolation capacity	Flood and standing water complaints Record of local surface water flow to spreading basin as measured by monitoring equipment

Pacoima Spreading Grounds Improvements

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Quality - Avoid import of salts from outside the region	Demonstrate reduced import of salts from outside the region	Decrease salt import by 3,234 metric tons per year	Quantification of imported water use compared to baseline Quantification of the concentration of TDS in the imported water source	Record of imported water deliveries to City of Los Angeles, Department of Water and Power Record of TDS concentrations in SWP imported water as reported by Metropolitan Water District of Southern California
Improve Open Space - Increase open space area	Demonstrate an increase in open space area surrounding the spreading basin	Increase open space area by 6.7 acres	Increase in open space area surrounding the spreading grounds	As-built plans

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-7). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Improve Water Supply, Supply Reliability, and Decrease Demands on California Delta

The Project goals to improve water supply, improve supply reliability and decrease demands on the California Delta are linked for this Project. By recharging local surface water to the San Fernando Groundwater Basin, additional ground water supply will be made available to pumpers. This supply is expected to offset the less reliable SWP supply and thus reduce demands on the Delta. Therefore, the same targets, performance indicators and tools can be used to measure progress in meeting these three performance measures.

In order to measure the performance outcome of the goals of improving water supply, reliability and decreased demands on the Delta, the volume of water entering the spreading basin and being infiltrated to the groundwater basin will be measured, and can be compared against baseline use.

Measurements of water diversions to the spreading grounds and infiltration will be made possible through installation of new flow sensors that will be installed upstream and downstream of the intake of the spreading grounds to measure the amount of water captured and bypassed. This data will be recorded with new telemetry equipment to be installed as a part of the Project. The data will ultimately be collected in a database for further analysis using Excel spreadsheets.

The monitoring targets selected for these Project Goals are recharge of 10,500 AFY of stormwater, on average, from Pacoima Wash to the San Fernando Groundwater Basin, and a concurrent reduction in imported water use from the SWP of 10,500 AFY. These targets are appropriate to demonstrate the increase of local water supply available from groundwater as they will demonstrate the increase in local water availability and usage. The tools and methods described above will effectively monitor performance and progress because flow monitoring equipment will directly measure the quantity and movement of water if properly maintained and calibrated, and actual usage will indicate progress towards decreasing imported demand.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Optimize local water resources to reduce the Region's reliance on imported water

It is anticipated that it will be feasible to meet the monitoring target by late 2016 because project construction is anticipated to be complete by September 2015 and performance testing is expected to be complete by October 2015, in time for the rainy season. This is well within the expected Project lifespan of 60 years.

Increase Energy Conservation and Reduce Greenhouse Gas Emissions

The Project will increase energy conservation and reduce greenhouse gas emissions by reducing the amount of imported water delivered through an increase in the amount of groundwater available, as described above. Imported water delivery requires far more energy than groundwater pumping, as discussed in Attachment 7. In order to measure the performance outcome of these goals, the reduction in energy usage and reduction in greenhouse gasses emitted will be used. The reduction in energy usage will be verified by using estimates of energy used per acre-foot to deliver imported water and the energy used to pump groundwater in relation to the amount of local surface water recharged at the Pacoima Spreading Grounds. The data needed for these calculations will consist of local surface water recharged and conversion factors for the amount of energy needed to deliver these water supplies, and conversion factors for greenhouse gas emissions for a given kWh of energy; the data will be analyzed after collection using a database and Excel spreadsheets. Additionally, the LACFCD will keep records of SWP energy demand requirements by SWP to quantify energy conservation.

The monitoring targets selected for these Project Goals are 27.6 million kWh per year and 9,047 metric tons of CO_2 equivalents emitted per year. These targets are appropriate to demonstrate the increase in energy conservation and reduction in greenhouse gas emissions because they will directly demonstrate the energy conservation and greenhouse gas emission reductions made possible through the Project.

It is anticipated that it will be feasible to meet the monitoring target by late 2016 because Project construction is anticipated to be complete by September 2015 and performance testing is expected to be complete by October 2015, in time for the rainy season. This is well within the expected Project lifespan of 60 years.

Improve Water Quality

The Project will improve water quality by implementing improvements that will increase percolation of local surface water from Pacoima Wash to the groundwater basin. In order to measure the performance outcome of this goal, a demonstrated improvement to surface water

quality in Pacoima Wash will be used. The data needed for water quality sampling consists of the results of water quality sampling completed by the City of Los Angeles in Tujunga Creek for concentrations of ammonia, bacteria and copper, which will then send reports of findings which the LACFCD will collect in electronic format. The data will be analyzed after collection using Excel spreadsheets by comparing water quality before and after the Project.

The monitoring targets selected for this Project Goal are decreases in ammonia loading by 50 pounds per day, total coliform bacteria by 11,000 billion colonies per day, E. coli by 180 billion colonies per day, dissolved copper loading by 1.8 pounds per day, total recoverable copper loading by 2.4 pounds per day, and a reduction in observable trash loading. These targets are appropriate to demonstrate the improved water quality Pacoima Wash because they will directly show the reduction in these constituents. The tools and methods described above will effectively monitor performance and progress because they will directly measure and analyze improvements to surface water quality.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater

It is anticipated that it will be feasible to meet the monitoring targets by late 2016 because Project construction is anticipated to be complete by September 2015 and performance testing is expected to be complete by October 2015, in time for the rainy season. This is well within the expected Project lifespan of 60 years.

Improve Water Quality – Avoid import of salts from outside the region

The Project will improve water quality by avoiding the import of 3,234 metric tons per year of Total Dissolved Solids (TDS), or salts, from outside the Greater Los Angeles Region. The reduction in TDS into the Region as a result of the Project will be quantified by recording water recharge and SWP imported water deliveries as measured by the City of Los Angeles, Department of Water and Power; TDS concentrations in SWP imported water will also be collected and recorded.

It is anticipated that it will be feasible to meet the monitoring target by late 2016 because Project construction is anticipated to be complete by September 2015 and performance testing is expected to be complete by October 2015, in time for the rainy season. This is well within the expected Project lifespan of 60 years.

Improve Flood Protection

The Project will improve flood protection by making the following improvements at the Pacoima Spreading Grounds: replacing the existing intake canal with underground pipes and replacement of the existing radial gate with an inflatable dam. In order to measure the performance outcome of this goal, the volume of water entering the spreading basin and being infiltrated to the groundwater basin will be measured, and can be compared against baseline use.

Measurements of water diversions to the spreading grounds and infiltration will be made possible through installation of new flow sensors that will be installed upstream and downstream of the intake of the spreading grounds to measure the amount of water captured and bypassed. This data will be recorded with new telemetry equipment to be installed as a part of the Project. The data will ultimately be collected in a database for further analysis using Excel spreadsheets.

The monitoring targets selected for this Project Goal is an increase in percolation of 77 cfs. This target is appropriate to demonstrate improved flood protection because it will reflect a 77 cfs reduction in flow in Pacoima Wash. The tools and methods described above will effectively monitor performance and progress because flow monitoring equipment will directly measure the quantity and movement of water if properly maintained and calibrated.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Maintain and enhance public infrastructure related to flood protection , water resources and water quality

It is anticipated that it will be feasible to meet the monitoring target by late 2016 because Project construction is anticipated to be complete by September 2015 and performance testing is expected to be complete by October 2015, in time for the rainy season. This is well within the expected Project lifespan of 60 years.

Improve Open Space Area

The Project will improve open space area by replacing the intake canal with underground pipes, allowing for open space in the area where the intake canal once was. In order to measure the performance outcome of this goal, change in acreage of open space on the site will be used. The increase in open space area will be verified by using as-built plans which will show the change in area created by replacing the intake canal with piping.

The monitoring target selected for this Project Goal is 6.7 acres of new open space on the spreading grounds site.

Using this performance measure and monitoring target, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Increase watershed friendly recreational space for all communities

It is anticipated that it will be feasible to meet the monitoring target by 2016 because Project construction is anticipated to be complete by September 2015, and will allow for the verification of open space created. This is well within the expected Project lifespan of 60 years.

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Peck Water Conservation Improvement Project

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Peck Water Conservation Improvement Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-8.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Peck Water Conservation Improvement Project (Project) proposes to make several improvements to the Peck Road Spreading Basin to improve percolation of stormwater, as well as improve downstream water quality and improve flood protection. These improvements include: installation of a pump station with 2 pumps, construction of 7,000 foot pipeline to convey water from the spreading basin to the San Gabriel River, and removal of sediment from the basin.

These activities will be executed in order to meet the Project goals listed in Table 6-8. Project goals will each have performance measures that will be used to quantify and verify project performance. The performance measures used to quantify and verify project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-8: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Supply – Increase percolation to the Main San Gabriel Groundwater Basin	Demonstrate effective capture and infiltration of stormwater	Increase groundwater recharge in the Main San Gabriel Groundwater Basin by 1,800 AFY, on average	Quantification of flow entering the spreading basin, rate of percolation into the basin	Record of local surface water flow to spreading basin as measured by monitoring equipment
Water Supply – Improve supply reliability	Reduce dependence on less reliable imported water supplies	Increase use of local surface water supplies by 1,800 AFY and decreased use of State Water Project (SWP) imported supplies by 1,800 AFY, on average	Quantification of local surface water and imported water use compared to baseline	Record of local surface water flow to spreading basin as measured by monitoring equipment Record of imported water deliveries to the Main San Gabriel Groundwater Basin pumpers from Annual Watermaster Reports
Delta Demands - Reduce Delta Demands to Help Address Bay-Delta Environmental Goals	Demonstrate decreased use of imported water from the SWP	Increase use of local surface water supplies by 1,800 AFY and decreased use of SWP imported supplies by 1,800 AFY, on average	Quantification of imported water use compared to baseline	Record of imported water deliveries to Main San Gabriel Basin Pumpers from Annual Watermaster Reports

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Energy Conservation - Reduce energy from offset of SWP water	Reduce energy consumption from conveyance of imported water	Conserve 4,545,000 kWh per year of energy	Quantification of imported water use compared to baseline Quantification of the kWh per AF required to pump/convey SWP imported water to Los Angeles	Record of local surface water deliveries and imported water deliveries as measured by LADPW influent flow meters for each source at the water treatment plant Record of SWP energy demand requirements as reported by SWP
Greenhouse Gas Reduction - Reduce emissions	Reduce emissions of CO_2 equivalents from conveyance of imported water	Avoid 1,492 metric tons of CO_2 equivalents per year emitted	Quantification of kWh of energy conserved by the offset of SWP imported water Quantification of CO_2 equivalents per kWh of energy	Record of local surface water deliveries and imported water deliveries as measured by LADPW influent flow meters for each source at the water treatment plant Climate Action Registry, General Reporting Protocol

Peck Water Conservation Improvement Project

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Quality - Reduce bacteria, copper, lead, zinc, cyanide, and trash loading to receiving waters	Demonstrate improved surface water quality in the Rio Hondo	Decrease loadings of bacteria, lead, zinc, cyanide and trash	Water quality data of Rio Hondo	Water quality sampling
Water Quality - Avoid import of salts from outside the region	Demonstrate reduced import of salts from outside the region	Decrease salt import by 555 metric tons per year	Quantification of imported water use compared to baseline Quantification of the concentration of TDS in the imported water source	Record of imported water deliveries to pumpers as measured by Main San Gabriel Basin Watermaster Record of TDS concentrations in SWP imported water as reported by Metropolitan Water District of Southern California
Flood Protection – Reduce downstream flood damage	Reduction of peak flows during flood events	Reduce peak flows in Rio Hondo by 50 cfs	Quantification of increased percolation capacity	Record of local surface water flow to spreading basin as measured by monitoring equipment

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-8). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Improve Water Supply, Supply Reliability, and Decrease Demands on California Delta

The Project goals to improve water supply, improve supply reliability and decrease demands on the California Delta are linked for this project. By recharging local surface water to the Main San Gabriel Groundwater Basin, additional groundwater supply will be made available to pumpers. This supply is expected to offset the less reliable SWP supply and thus reduce demands on the Delta. Therefore, the same targets, performance indicators and tools can be used to measure progress in meeting these three performance measures.

In order to measure the performance outcome of the goals of improving water supply, reliability and decreased demands on the Delta, the volume of water entering the spreading basin and being infiltrated to the groundwater basin will be measured, and can be compared against baseline use.

Measurements of water diversions to the river and infiltration will be made possible through the installation of flow meter at the pump and existing flow sensors located upstream and downstream of the intake of the spreading basin as well as at the San Gabriel River to measure the amount of water captured, bypassed, and conserved. This data will be recorded and ultimately collected in a database for further analysis using Excel spreadsheets.

The monitoring targets selected for these Project Goals are recharge of 1,800 AFY of stormwater, on average, from the Rio Hondo to the Main San Gabriel Groundwater Basin, and a concurrent reduction in imported water use from the SWP of 1,800 AFY. These targets are appropriate to demonstrate the increase of local water supply available from groundwater as they will demonstrate the increase in local water availability and usage. The tools and methods described above will effectively monitor performance and progress because flow monitoring equipment will directly measure the quantity and movement of water if properly maintained and calibrated, and actual usage will indicate progress towards decreasing imported demand.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Optimize local water resources to reduce the Region's reliance on imported water

It is anticipated that it will be feasible to meet the monitoring target by 2016 because Project construction and performance testing are anticipated to be complete by December 2015, in time for the rainy season. This is well within the expected Project lifespan of 90 years.

Increase Energy Conservation and Reduce Greenhouse Gas Emissions

The Project will increase energy conservation and reduce greenhouse gas emissions by reducing the amount of imported water delivered through an increase in the amount of groundwater available, as described above. Imported water delivery requires far more energy than groundwater pumping, as discussed in Attachment 7. In order to measure the performance outcome of these goals, the reduction in energy usage and reduction in greenhouse gasses emitted will be used. The reduction in energy usage will be verified by using estimates of energy used per acre-foot to deliver imported water and the energy used to pump groundwater in relation to the amount of local surface water recharged at the Peck Road Spreading Basin. The data needed for these calculations will consist of local surface water recharged and conversion factors for the amount of energy needed to deliver these water supplies, and conversion factors for greenhouse gas emissions for a given kWh of energy; the data will be analyzed after collection using a database and Excel spreadsheets. Additionally, the LACFCD will keep records of SWP energy demand requirements by SWP to quantify energy conservation.

The monitoring targets selected for these Project Goals are 4,545,000 kWh per year and 1,645 metric tons of CO_2 equivalents emitted per year. These targets are appropriate to demonstrate the increase in energy conservation and reduction in greenhouse gas emissions because they will directly demonstrate the energy conservation and greenhouse gas emission reductions made possible through the Project.

It is anticipated that it will be feasible to meet the monitoring target by 2016 because Project construction and performance testing are anticipated to be complete by December 2015, in time for the rainy season. This is well within the expected Project lifespan of 90 years.

Improve Water Quality

The Project will improve water quality by implementing improvements that will increase percolation of local surface water from the Rio Hondo to the groundwater basin. In order to measure the performance outcome of this goal, a demonstrated improvement to surface water quality in the Rio Hondo will be used. The data needed for water quality sampling consists of the results of water quality sampling done in the Rio Hondo for concentrations of bacteria,

copper, lead, zinc, cyanide and trash, which will be collected in electronic format. The data will be analyzed after collection using Excel spreadsheets by comparing water quality before and after the Project.

The monitoring targets selected for this Project Goal are decreases in bacteria, copper, lead, and nickel. These targets are appropriate to demonstrate the improved water quality of the Rio Hondo because they will directly show the reduction in these constituents. The tools and methods described above will effectively monitor performance and progress because they will directly measure and analyze improvements to surface water quality.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater

It is anticipated that it will be feasible to meet the monitoring target by 2016 because project construction and performance testing are anticipated to be complete by December 2015, in time for the rainy season. This is well within the expected Project lifespan of 90 years.

Improve Water Quality – Avoid import of salts from outside the region

The Project will improve water quality by avoiding the import of 555 metric tons per year of Total Dissolved Solids (TDS), or salts, from outside the Greater Los Angeles Region. The reduction in TDS into the Region as a result of the Project will be quantified by recording water recharge and SWP imported water deliveries as measured by the Main San Gabriel Basin Watermaster; TDS concentrations in SWP imported water will also be collected and recorded.

It is anticipated that it will be feasible to meet the monitoring target by 2016 because Project construction is anticipated to be complete by December 2015, in time for the rainy season. This is well within the expected Project lifespan of 90 years.

Improve Flood Protection

The Project will improve flood protection through the removal of sediment and installation of a pump and pipeline at the Peck Road Spreading Basin which will allow for increased recharge. In order to measure the performance outcome of this goal, the volume of water entering the spreading basin and being infiltrated to the groundwater basin will be measured, and can be compared against baseline use.

Measurements of water diversions to the river and infiltration will be made possible through the installation of flow meter at the pump and existing flow sensors located upstream and downstream of the intake of the spreading basin as well as at the San Gabriel River to measure the amount of water captured, bypassed, and conserved. This data will be recorded and ultimately collected in a database for further analysis using Excel spreadsheets.

The monitoring targets selected for this Project Goal is a reduction of peak flows by 50 cfs. This target is appropriate to demonstrate improved flood protection because it will reflect a 50 cfs reduction in flow in Rio Hondo. The tools and methods described above will effectively monitor performance and progress because flow monitoring equipment will directly measure the quantity and movement of water if properly maintained and calibrated.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Maintain and enhance public infrastructure related to flood protection , water resources and water quality

It is anticipated that it will be feasible to meet the monitoring target by 2016 because project construction and performance testing are anticipated to be complete by December 2015, in time for the rainy season. This is well within the expected Project lifespan of 90 years.

San Jose Creek Water Reclamation Plant East Process Optimization Project

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the San Jose Creek Water Reclamation Plant East Process Optimization Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-9.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Project will consist of the construction of process optimization facilities at the San Jose Creek Water Reclamation Plant (SJCWRP) East. The construction includes the addition of flow equalization, implementation of sequential chlorination, replacement of process air compressors (PACs), and optimization of the aeration system. Flow equalization tanks would reduce flow variability to downstream unit processes thereby improving operation of those processes and the overall quality of the recycled water produced by the plant. The equalization tanks would allow the plant to more efficiently manage both hydraulic and nutrient loadings to the nitrification/denitrification (NDN) unit processes. Flow equalization tanks would also increase the quantity and availability of recycled water by 8,400 AFY.

These activities will be executed in order to meet the Project goals listed in Table 6-9. Project goals will each have performance measures that will be used to quantify and verify project performance. The performance measures used to quantify and verify project performance are described in narrative form in the Project Goals and Performance Measures section below. Table 6-9: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Supply – Increase the volume and availability of recycled water for reuse	Increase recycled water production	Increase the volume and availability of recycled water for reuse by 8,400 AFY	Quantitative Indicators: amount of recycled water produced (in AFY) and recycled water used (in AFY)	Plant flow metering data, flow metering data at delivery point
Water Supply – Increased reliability	Qualitative			
Delta Demands – Decreased	Increase recycled water production	Increase the volume and availability of recycled water for reuse by 8,400 AFY	Quantitative Indicators: amount of recycled water produced (in AFY) and recycled water used (in AFY)	Plant flow metering data, flow metering data at delivery point
Water Quality – Improve overall effluent quality	Improve overall effluent quality, including ammonia and disinfection byproducts	Improve the performance of the NDN process Ensure continued compliance with Title 22 disinfection requirements for unrestricted	Quantitative Indicators: amount of ammonia and disinfection byproducts within effluent	Monitor and lab testing

		reuse Minimize formation of disinfection byproducts		
Energy Conservation – Reduce power from treatment upgrades	Demonstrate power reduction	Reduce power consumption by 2.85 million kWh per year	Quantitative Indicators: Cost savings (in dollars) and power consumption savings (in kWh)	Excel spreadsheet
Energy Conservation – Reduce power from offset of SWP water	Demonstrate power reduction	Reduce power consumption by 25.2 million kWh per year	Quantification of imported water use compared to baseline (assume 100% offset) Quantification of the energy required for imported water	Plant flow metering data, flow metering data at delivery point Record of energy required for SWP and CR imported water. MWD will collect, record, and report this data.
Greenhouse Gas Reduction – Reduce emissions	Demonstrate GHG emission reduction	Reduce GHG emissions by 9,213 MT CO_2 equivalents per year	Quantitative Indicators: CO_2 equivalents from power consumption savings (in kWh)	Excel spreadsheet

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-9). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Increase the volume and availability of recycled water for reuse and reduced Delta demands

The Project will increase the volume and availability of recycled water for reuse by 8,400 AFY by optimizing the facilities at the SJCWRP East. In order to measure the performance outcome of this goal, the amount of recycled water produced (in AFY) and recycled water used (in AFY) will be compared to a baseline established prior to implementation of the Project. The amount of recycled water produced (in AFY) will be monitored using plant flow metering data at SJCWRP and the amount of recycled water used (in AFY) will be monitored using flow metering data at the delivery point. The flow data will be analyzed and compared with flow data prior to the implementation of the Project using an Excel spreadsheet.

The monitoring target selected for this Project goal is production of 8,400 AFY of recycled water. This target is appropriate to demonstrate the reduction on imported water dependence and the diversification of water supplies because the overall need to purchase imported water is reduced for recycled water customers. The tools and methods described above will effectively monitor performance and progress because flow meters will directly measure the quantity of recycled water produced and delivered.

Each year the quantity of wastewater treated at SJCWRP varies with domestic and industrial wastewater sources outside of LACSD's control. It is anticipated this Project will realize an immediate physical benefit, increasing the amount and availability of recycled water. However, the amount of wastewater treated by the plant will vary with the volume of wastewater produced within the SJCWRP sewershed. Additionally, use of recycled water is not within LACSD's control and is subject to variations based a number of factors which include weather, reuse system operation by recycled water customers, and diurnal demands. Therefore, the amount of recycled water used would be variable and potentially lower than the estimated target.

It is anticipated that it will be feasible to meet the monitoring target by end of 2024 because Project construction, including performance testing, is anticipated to be complete by December 2018. Therefore it will be possible to obtain five years of monitoring data between 2019 and

2024 to demonstrate that the target has been met. This is well within the expected Project lifespan of 50 years.

Improve overall effluent quality

The Project will improve effluent quality by:

1. Improving the performance of the NDN process,
2. Ensuring continued compliance with Title 22 disinfection requirements for unrestricted reuse, and
3. Minimizing the formation of disinfection byproducts.

In order to measure the performance outcome of this goal, multiple constituents within the treatment process, including ammonia and disinfection byproducts, will be monitored and compared to a baseline established prior to implementation of the Project. Final effluent flow will be sampled, monitored and tested monthly or semi-annually to comply with the Title 22 disinfection requirements for unrestricted reuse. The monitoring and lab data will be verified with previous water quality results and will be analyzed using an Excel spreadsheet.

The monitoring target selected for this Project goal is to improve overall effluent water quality as constituent loadings to the treatment plant increase. This target is appropriate to demonstrate the improvement of the NDN process performance, continued compliance with Title 22 disinfection requirements for unrestricted reuse and minimization of disinfection byproducts formation. The tools and methods described above will effectively monitor performance and progress because lab analysis will directly measure the concentration of the constituents in the effluent.

It is anticipated that it will be feasible to meet the monitoring target by end of 2024 because Project construction, including performance testing, is anticipated to be complete by December 2018. Therefore it will be possible to obtain five years of monitoring data between 2019 and 2024 to demonstrate that the target has been met. This is well within the expected Project lifespan of 50 years.

Energy conservation

The Project will reduce the PACs' power consumption by 4.1 million kWh per year between 2017 and 2019. In combination with the replacement of the PACs, the addition of flow equalization, implementation of sequential chlorination, and optimization of the aeration systems in 2019 will result in a net power consumption savings of 2.85 million kWh per year

(reduced from 4.1 million kWh per year) from that year forward. In order to measure the performance outcome of this goal, energy bills will be used. The energy bills will be verified with the PAC power usage data and the overall SJCWRP power usage data. Both the power and cost savings data will be normalized against plant flows. The data will then be compared with energy usage before implementation of the Project using an Excel spreadsheet.

The monitoring target selected for this Project goal is reduced power usage. This target is appropriate to demonstrate the reduction in power consumption because it will show the amount of power saved. The tools and methods described above will effectively monitor performance and progress because it will directly show the amount of power used and saved when compared with previous power usage for the same amount of recycled water produced.

The power savings estimate associated with potential offsets of imported water with recycled water is based on the increased amount of recycled water produced (approximately 8,400 AFY). This will result in an energy conservation of approximately 25.2 million kWh per year starting in 2019. In order to measure the performance outcome of this goal, the amount of recycled water produced (in AFY) will be compared to a baseline established prior to implementation of the Project. The amount of recycled water produced (in AFY) will be monitored using plant flow metering data at SJCWRP. The data will be analyzed and compared with data prior to the implementation of the Project using an Excel spreadsheet.

The monitoring target selected for this Project goal is production of 8,400 AFY of recycled water. This target is appropriate to demonstrate power savings associated with pumping less imported water to the region. The tools and methods described above will effectively monitor performance and progress because power savings can be determined based on the quantity of recycled water produced.

Each year the quantity of wastewater treated at SJCWRP varies with domestic and industrial wastewater sources outside of LACSD's control. Power consumption at the plant is directly correlated to the volume of wastewater treated. It is anticipated that replacement of the PACs will realize an immediate physical benefit of power savings. However, the amount of power savings throughout the plant will vary with the volume of wastewater treated. The power savings estimate associated with potential offsets of imported water with recycled water is based on the increased amount of recycled water produced (approximately 8,400 AFY), whereas the actual reduction would be dependent on the amount of recycled water used to offset imported water, which is not within LACSD's control. Therefore, the amount power savings would be variable and potentially lower than the estimated target.

It is anticipated that it will be feasible to meet the monitoring target by end of 2024 because Project construction, including performance testing, is anticipated to be complete by December 2018. Therefore it will be possible to obtain five years of monitoring data between 2019 and 2024 to demonstrate that the target has been met. This is well within the expected Project lifespan of 50 years.

Greenhouse gas (GHG) reduction

Starting in 2019, the Project will reduce GHG emissions by 937 metric tons of CO_2 equivalents per year by constructing flow equalization, implementing sequential chlorination, replacing the PACs, and optimizing the aeration systems.[1] In order to measure the performance outcome of this goal, energy bills will be used to calculate the GHG emissions. The energy bills will be verified with the PAC power usage data and overall WRP power usage data. The GHG calculations will be normalized against plant flows. The data and calculations will be compared with the data obtained before the implementation of the Project using an Excel spreadsheet.

The monitoring target selected for this Project goal is reduced power usage. This target is appropriate to demonstrate the reduction in power consumption because it will show the amount of power saved. The tools and methods described above will effectively monitor performance and progress because the energy bills will demonstrate the amount of power used and saved when compared with previous power usage for the same amount of recycled water produced.

GHG reductions (in CO2 equivalents) will be determined at the treatment plant level based on a measured decrease in overall power consumption as well as at the regional level based on the increased amount of recycled water produced, which would offset the power required to supply imported water to the region.

The GHG reductions associated with potential offsets of imported water with recycled water is based on the increased amount of recycled water produced (approximately 8,400 AFY). This will result in a GHG reduction of approximately 8,276 metric tons of CO2 equivalents per year starting in 2019. In order to measure the performance outcome of this goal, the amount of recycled water produced (in AFY) will be compared to a baseline established prior to implementation of the Project. The amount of recycled water produced (in AFY) will be

[1] GHG reduction will be 1,348 MT of CO_2e between 2017 and 2019 because of the newer, more efficient PACs. See Attachments 7 and 8 for further detail.

monitored using plant flow metering data at SJCWRP. The data will be analyzed and compared with data prior to the implementation of the Project using an Excel spreadsheet.

The monitoring target selected for this Project goal is production of 8,400 AFY of recycled water. This target is appropriate to demonstrate GHG reductions associated with pumping less imported water to the region. The tools and methods described above will effectively monitor performance and progress because GHG reductions can be determined based on the power savings resulting from the quantity of recycled water produced.

Each year the quantity of wastewater treated at SJCWRP varies with domestic and industrial wastewater sources outside of LACSD's control. GHG emission reductions will be based on reductions in power consumption. Power consumption at the plant is directly correlated to the volume of wastewater treated. It is anticipated that replacement of the PACs will realize an immediate physical benefit of power savings and thus GHG reductions. However, the amount of power savings and GHG reductions throughout the plant will vary with the volume of wastewater treated. The GHG reduction estimate associated with potential offsets of imported water with recycled water is based on the increased amount of recycled water produced (approximately 8,400 AFY), whereas the actual reduction would be dependent on the amount of recycled water used to offset imported water, which is not within LACSD's control. Therefore, the amount of GHG emissions reduced would be variable and potentially lower than the estimated target.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Improve water supply – Flow monitoring of available recycled water will measure and demonstrate how water supply has been improved.
- Improve water quality – Water quality monitoring will measure and demonstrate the improved treatment process performance and minimize the effect of increasing constituent loading in the recycled water produced.
- Sustain infrastructure for local communities - Replacement of aging infrastructure, such as the PACs, which are between 30 and 41 years old, will demonstrate the sustainable infrastructure for local communities.

It is anticipated that it will be feasible to meet the monitoring target by end of 2024 because Project construction, including performance testing, is anticipated to be complete by December 2018. Therefore it will be possible to obtain five years of monitoring data between 2019 and

2024 to demonstrate that the target has been met. This is well within the expected Project lifespan of 50 years.

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South Gardena Recycled Water Pipeline Project

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the South Gardena Recycled Water Pipeline Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-10.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the Project
- Performance indicators – measures to evaluate change that is a direct result of the Project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Project includes the design and construction of a 1.25 mile recycled water pipeline in South Gardena, a disadvantaged community (DAC), and serve approximately 120 acre-feet per year (AFY) of recycled water. These activities will be executed in order to meet the Project goals listed in Table 6-10. Project goals will each have performance measures that will be used to quantify and verify Project performance. The performance measures used to quantify and verify Project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-10: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Supply – Offset of imported water demand	Water Savings	Serve 120 AFY of recycled water	Quantitative Indicators: water meter records at each of the four sites	Water meter readings
Delta Demands - decreased	Reduce Delta Demands	Reduce Delta Demands by 120 AFY	Qualitative Indicators: water meter records at each of the four sites	Water meter readings
Energy Conservation – Reduce power from offset of SWP water	Reduce power consumption	Demonstrate power reduction by 301,200 kWh per year	Quantification of imported water use compared to baseline (assume 100% offset) Quantification of the energy required for imported water	Plant flow metering data, flow metering data at delivery point Record of energy required for SWP imported water. MWD will collect, record, and report this data.
Greenhouse Gas Reduction – Reduce emissions	Reduce GHG emissions	Demonstrate GHG emission reduction by 99 MT CO_2 equivalents per year	Quantitative Indicators: CO_2 equivalents from power consumption savings (in kWh)	Excel spreadsheet
Fertilizer Reduction – Reduce fertilizer use	Reduce fertilizer use	Demonstrate reduction of 7,440 lbs of fertilizer	Quantitative Indicators: fertilizer purchases at each of the four sites	Excel spreadsheet

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-10). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Water Supply - Reduced Imported Demands and Reduced Delta Demands

The Project will offset imported water supply by reducing water demand of 120 AFY for irrigation. In order to measure the performance outcome of this goal, the water records for each of the four sites (Gardena High School, South Garden Park, Roosevelt Memorial Park Association and C Stars Nursery) will be used. The delivery of water to consumers (end users) is tracked via a meter at the point of connection. WBMWD charges its retail agencies for their water use and they, in turn, charge their consumers based on the meter readings. The water records will document the amount of recycled water used instead of potable water. On a monthly basis, staff will collect water consumption records (water bills) to determine the amount of imported water reduced.

The monitoring target selected for this Project Goal is 120 AFY of recycled water for irrigation. The tools and methods described above will effectively monitor performance and progress because the water consumption records will directly measure the quantity of water used, if meters are properly maintained and calibrated.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Optimize local water resources to reduce the Region's reliance on imported water

It is anticipated that it will be feasible to meet the monitoring target by 2018, after two years of data collection. This is well within the expected Project lifespan of 40 years.

Increase Energy Conservation and Reduce Greenhouse Gas Emissions

The Project will increase energy conservation and reduce greenhouse gas emissions by reducing the amount of imported water delivered. Imported water delivery requires far more energy than recycled water, as discussed in Attachment 7. In order to measure the performance outcome of these goals, the reduction in energy usage and reduction in greenhouse gases emitted will be estimated. The reduction in energy usage will be calculated by using estimates of energy used per acre-foot to deliver imported water and the energy used to produce and

deliver recycled water to the four new sites applied to actual recycled water deliveries measured in AFY. The data needed for these calculations will consist of recycled water production and conversion factors for the amount of energy needed to deliver these water supplies, and conversion factors for greenhouse gas emissions for a given kWh of energy; the data will be analyzed after collection using a database and Excel spreadsheets. Additionally, WBMWD will keep records of SWP energy demand requirements by SWP to quantify energy conservation.

The monitoring targets selected for these Project Goals are 301,200 kWh per year and 99 metric tons of CO_2 equivalents emitted per year. These targets are appropriate to demonstrate the increase in energy conservation and reduction in greenhouse gas emissions because they will directly demonstrate the energy conservation and greenhouse gas emission reductions made possible through the Project.

It is anticipated that it will be feasible to meet the monitoring target by 2018 because Project construction is anticipated to be complete by August 2015 along with the performance testing. This is well within the expected Project lifespan of 40 years.

Reduced Fertilizer Use

The Project will reduce fertilizer use by reducing fertilizer use of 7,440 pounds per year. In order to measure the performance outcome of this goal, the amount of fertilizer purchased will be compared before project implemented. In order to measure the performance outcome of this goal, the fertilizer bills for each of the four sites (Gardena High School, South Garden Park, Roosevelt Memorial Park Association and C Stars Nursery) will be used. The fertilizer bills will document the amount of fertilizer used before and after the Project has been implemented. By using recycled water for irrigation, less fertilizer will be needed to reducing compounds commonly present in recycled water are typically not found in potable water (e.g., nitrogen, phosphorus, potassium). Thus the use of recycled water for landscape irrigation will reduce fertilizer costs associated with the properties that will be serviced by the Project.

The exact offset of fertilizer use from using recycled water is difficult to predict due to daily and seasonal nutrient variations in the recycled water. However, the amount of nutrients (i.e., pounds of fertilizer) per acre-foot of recycled water can be calculated from average (tertiary-treated) effluent values.

The monitoring targets selected for this Project goal is 7,440 lbs per year. These targets are appropriate to demonstrate the reduction in fertilizer use because they will directly demonstrate the increase in nutrients made possible through the Project.

It is anticipated that it will be feasible to meet the monitoring target by 2018 because Project construction is anticipated to be complete by August 2015 along with the performance testing. This is well within the expected Project lifespan of 40 years.

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Upper Malibu Creek Watershed Restoration

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Upper Malibu Creek Watershed Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-11**. The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Project proposes to restore channelized sections of creeks in the Upper Malibu Creek Watershed, including Medea Creek and a failed channelized section of Las Virgenes Creek, and will create recreational access and educational opportunities. These activities will be executed in order to meet the Project goals listed in Table 6-11. Project goals will each have performance measures that will be used to quantify and verify project performance. The performance measures used to quantify and verify project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-11: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Habitat - Create or restore riparian habitat	Demonstrate restoration of riparian habitat at the restoration sites	Restore 4 acres of riparian habitat	Sustained plant life at restoration sites	Evaluation of plant growth
Habitat - Reconnected migration corridors	Demonstrate restoration of riparian habitat at the restoration sites	Reconnect migration corridors	Animal migration through restoration sites	Surveys of animal migration
Recreation - Increased recreational access	Demonstrate establishment of recreation access at the restoration sites	Create 1.7 miles of recreation trails at the Las Virgenes Creek restoration site Create 550 feet of recreation trails at the Medea Creek restoration site Interconnect restoration areas with regional trail systems	Linear feet of recreation trails added Number of interconnections with regional trail systems	Final construction report

Upper Malibu Creek Watershed Restoration

Performance Measures

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Quality - Increased dissolved oxygen levels in surface waters Decreased surface water temperatures Decreased nutrient (nitrogen and phosphorus) concentrations in surface waters	Demonstrate an increase in dissolved oxygen levels in the restored areas of the Upper Malibu Creek watershed Demonstrate a decrease in surface water temperature in the restored areas of the Upper Malibu Creek watershed Demonstrate a reduction in concentration of nitrogen and phosphorus in the restored areas of the Upper Malibu Creek watershed	Increase dissolved oxygen levels Decrease surface water temperatures Decrease in concentrations of nitrogen Decrease concentrations of phosphorus	Dissolved oxygen levels in the restored areas of the Upper Malibu Creek watershed Water temperature in the restored areas of the Upper Malibu Creek watershed Nitrogen concentrations in the restored areas of the Upper Malibu Creek watershed Phosphorus concentrations in the restored areas of the Upper Malibu Creek watershed	Water quality sampling
Education - Increased	Demonstrate increased educational value of the restored areas of the Upper Malibu Creek watershed	Create informational signage and leaflets for educational use by school staff and parents, field trips, and in classroom presentations	Number of impressions (leaflets distributed) Counts of trail users	Final Report
Flood Protection – Increased	Demonstrate decrease in flood frequency in Las Virgenes Creek	Decrease in flood impacts in Las Virgenes Creek	Flow velocity	Flow Modeling Field testing

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-11). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Habitat - Create or Restore Riparian Habitat

The Project will restore habitat by implementing the removal of concrete lining currently in the restoration locations, and installing native plants. In order to measure the performance outcome of this goal, sustained plant life will be used. Sustained plant life will be verified through visitation of the restoration sites by a biologist to evaluate plant growth. The data needed for the evaluation of plant growth consists of photo-documentation and a written report by the biologist.

The monitoring target selected for this Project Goal is the restoration of 4 acres of riparian habitat. This target is appropriate to demonstrate the restoration of habitat because the restoration areas are currently devoid of habitat. The tools and methods described above will effectively monitor performance and progress because they will demonstrate the measured increase in riparian habitat.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Protect, restore, and enhance natural processes and habitats

It is anticipated that it will be feasible to meet the monitoring target by 2020 because it is assumed that the native plants will require 5 years to become established after construction is completed in December 2014. This is well within the expected Project lifespan of 80 years.

Habitat - Reconnect Migration Corridors

The Project will restore habitat by implementing the removal of concrete lining currently in the restoration locations, and installing native plants. In order to measure the performance outcome of this goal, reconnection of migration corridors will be used. Reconnection of migration corridors will be verified through surveys that will be conducted through field verification of animal sightings in the restoration areas, and will likely require a partnership with the National Park Service of California State Parks, or employment of a university student. These sightings will be recorded and analyzed by a biologist.

The monitoring target selected for this Project Goal is the reconnection of migration corridors. This target is appropriate to demonstrate the restoration of habitat because the restoration areas are currently devoid of habitat. The tools and methods described above will effectively monitor performance and progress because they will demonstrate the measured increase in riparian habitat available for migration.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Protect, restore, and enhance natural processes and habitats

It is anticipated that it will be feasible to meet the monitoring target by 2020 because it is assumed that the native plants will require 5 years to become established after construction is completed in December 2014. This is well within the expected Project lifespan of 80 years.

Recreation – Increase Recreational Access

The Project will improve recreation nearby the Project sites through the creation of recreation trails, and interconnection of these trails with regional trail systems. In order to measure the performance outcome of this goal, the linear feet of recreation trails created and the number of trail interconnections will be measured.

The linear feet of trails created will be verified by using construction reports provided by the contractor which will report on the final conditions of the restoration sites. This information will be collected and analyzed as part of a project report.

The first monitoring target selected for this Project Goal is the creation of 1.7 miles of recreation trail at the Las Virgenes Creek site, and 550 feet of trail at the Medea Creek Site. These targets are appropriate to demonstrate the increase in recreation because they represent the additional recreational access added to the area. The tools and methods described above will effectively monitor performance and progress because they will directly measure the additional recreational access provided through the project.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Increase watershed friendly recreational space for all communities

It is anticipated that it will be feasible to meet the monitoring target because the trails will immediately be available for public access, starting in 2015.

Water Quality - Increase dissolved oxygen levels in surface waters, Decrease surface water temperatures, and Decrease nutrient concentrations in surface waters

The Project will improve the water quality in the Upper Malibu Creek watershed by restoring native habitat which will naturally reduce constituents present. In order to measure the performance outcome of this goal, measured improvements in dissolved oxygen, water temperature, nitrogen concentrations and phosphorus concentrations will be used.

The measured improvement in the above listed constituents will be verified by using water quality sampling data for Las Virgenes Creek and Medea Creek at each restoration site. The data needed for water quality sampling consists of grab samples taken during storm events. The samples will be sent to a lab which will test the samples for bacterial concentrations. All water quality monitoring data will be reported through the data sharing techniques currently under development with the Malibu Creek Watershed-wide Monitoring Program. The results of these sampling events will be collected, compiled, and analyzed by Calabasas and Agoura Hills using Excel spreadsheets to compare water quality before and after the project.

The monitoring targets selected for this goal are as follows:

- Increase in dissolved oxygen levels at the Las Virgenes Creek and Medea Creek restoration sites - there is no specific numerical target at this time.
- Decrease in surface water temperatures at the Las Virgenes Creek and Medea Creek restoration sites - there is no specific numerical target at this time.
- Decrease in nitrogen concentrations at the Las Virgenes Creek and Medea Creek restoration sites- there is no specific numerical target at this time.
- Decrease in phosphorus concentrations at the Las Virgenes Creek and Medea Creek restoration sites - there is no specific numerical target at this time.

These targets are appropriate to demonstrate the improved water quality because the Malibu Creek watershed is currently impaired by the above listed constituents. The tools and methods described above will effectively monitor performance and progress because they will demonstrate the measured reduction in constituent concentrations present.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater

It is anticipated that it will be feasible to meet the monitoring target by 2020 because the restoration will provide benefits once the native plants have become established (within five years). This is well within the expected Project lifespan of 80 years.

Education - Increased

The Project will increase watershed education through the installation of informational signs for the public about the creek restorations. In order to measure the performance outcome of this goal, the number of impressions will be used. The number of impressions will be verified by the number of educational pamphlets distributed as well as periodic counts of trail users.

The monitoring target selected for this Project Goal is 75,000 impressions. This target is appropriate to demonstrate an increase in watershed education because the Malibu Creek Watershed's population is approximately 75,000.

It is anticipated that it will be feasible to meet the monitoring target by 2020. This is well within the expected Project lifespan of 80 years.

Flood Protection – Increased

The Project will improve flood protection by reducing the quantity of sediment available to block the downstream channel during flood events. In order to measure the performance outcome of this goal, the change in flow velocity will be used. Flow velocity can be theoretically verified by engineering analysis (modeling), as well as flow velocity measurements after the Project has been constructed.

The monitoring target selected for this Project Goal is a reduction in flow velocity in Las Virgenes Creek. This target is appropriate to demonstrate improvement in flood protection because storm drain blockages are the primary cause of localized flooding. The tools and methods described above will effectively monitor performance and progress because they provide a measured, recorded set of data to verify the reduction in velocity of the Las Virgenes Creek, which can be translated to a decrease in flooding potential given that lower flow velocities can carry as much sediment.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Maintain and enhance public infrastructure related to flood protection, water resources and water quality

It is anticipated that it will be feasible to meet the monitoring target by 2015 because the engineered channel will prevent the release of sediment during storm events, which will be measured during several winter storms following construction. This is well within the expected Project lifespan of 80 years.

Vermont Avenue Stormwater Capture and Green Street Project

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Vermont Avenue Stormwater Capture and Green Street Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify project performance with respect to the project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-12**. The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Vermont Avenue Green Street and Stormwater Capture Project (Project) proposes the installation of green street standard plan features along Vermont Avenue and in selected sub-watersheds that drain to storm drains on and slightly upstream of Vermont Ave. This Project will also promote installation of BMPs on private property through public outreach and education and through the creation of a “BMP Toolbox” for private parcels, with analysis to gage their effectiveness at improving water quality.

These activities will be executed in order to meet the Project goals listed in Table 6-12. Project goals will each have performance measures that will be used to quantify and verify project

performance. The performance measures used to quantify and verify project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-12: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Quality – TSS, nutrient, indicator bacteria and metals reduction	Demonstrated reduction in Total Suspended Solids (TSS) Demonstrated reduction in nutrients (phosphorus and nitrogen) Reduction in Fecal Indicator Bacteria (fecal coliform, enterococcus, streptococcus, total coliform) Demonstrated reduction in metals (copper, lead, selenium, zinc, and hardness)	Reduce TSS by 1,200/year Reduce total phosphorus by 3.5 kg/year Reduce total nitrogen by 25 kg/year Reduce fecal coliform by 100,000 billion colonies per year Reduce fecal enterococcus by 55,0000 billion colonies per year Reduce fecal streptococcus by 110,000 billion colonies per year Reduce total coliform by 170,000 billion colonies per year Reduce copper by 0.459 kg/year Reduce lead by 0.170 kg/year Reduce zinc by 3.334 kg/year	Quantification of loadings of TSS, nutrients, metals and bacteria.	Water quality sampling

Vermont Avenue Stormwater Capture and Greenstreet

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Flood Protection – Urban runoff and stormwater reduction	Demonstrate increased drainage of local nuisance flooding	Reduce instances of street flooding	Reduction in standing water in known areas of nuisances flooding	Visual monitoring of Project area during storms
Greenhouse gas reduction – carbon sequestration	Sequester carbon	Sequester 3,015 kg of carbon per year	Quantification of carbon sequestered by planted trees	Number of trees planted Estimated carbon sequestration of trees
Education	Demonstrate increased public awareness of stormwater quality	Increased public awareness of watersheds and stormwater quality issues	Public awareness as shown through community surveys	Community surveys

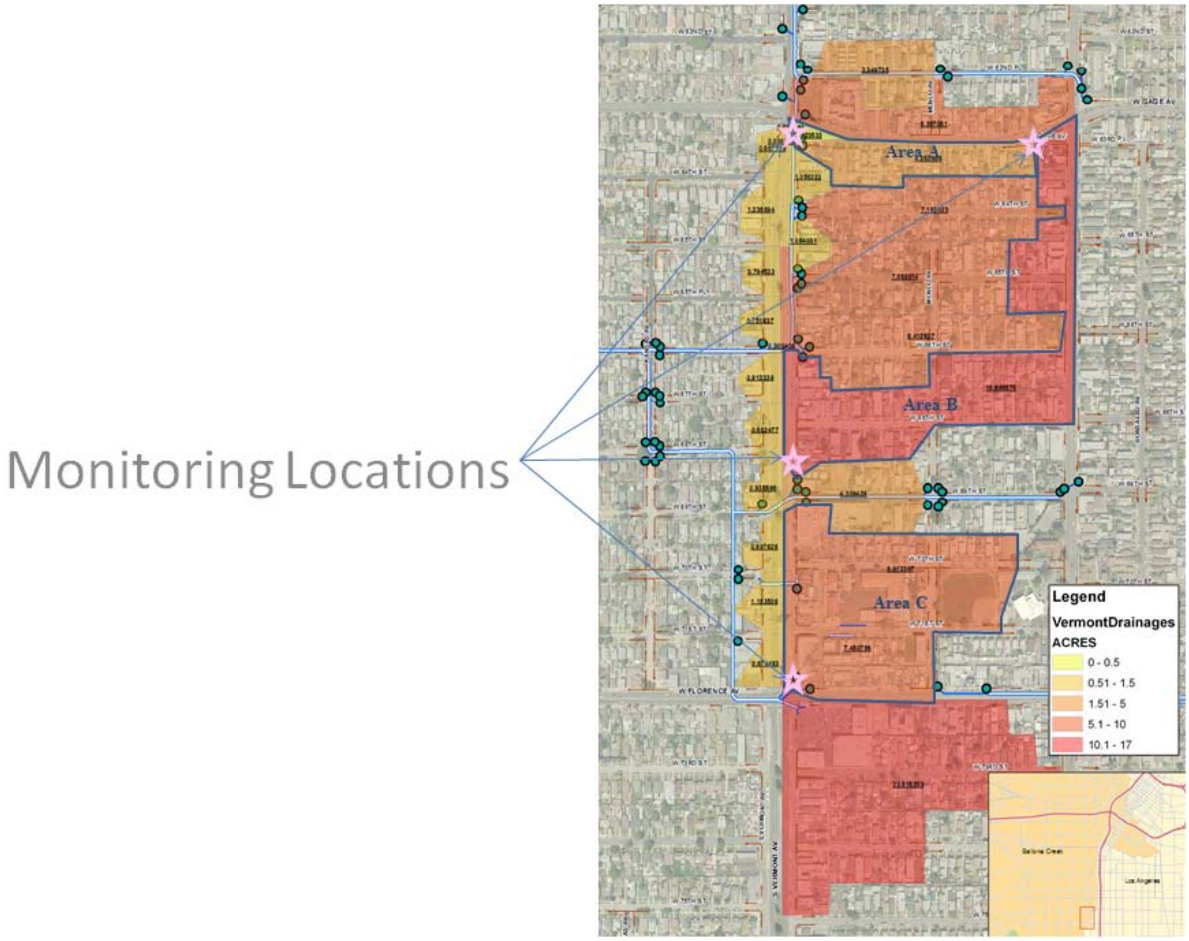
Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-12). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Improve Water Quality

The Project will improve water quality by implementing BMP that will filter stormwater prior to either discharge to surface waters or recharge to groundwater. In order to measure the performance outcome of this goal, a demonstrated improvement in water quality at select storm drains will be used. All pre- and post- project water quality samples will be collected by the City of Los Angeles. City staff will perform baseline sampling prior to Project installation at targeted areas, and post-construction at the same location. Heal the Bay may assist City Staff with field work or sample collection. If possible, automated sampling pumps (auto-samplers) will be programmed to collect composite samples so that input samples represent the Event Mean Concentration (EMC) for each monitored storm event.

In addition to water quality sampling, the Project will install flow meters and auto-samplers. These devices will be placed at secure locations leading from the infiltration swales into drywells, and from the gutter to the median swale. Flow meters will be placed strategically, both before and after construction to assess how much flow installed BMPs will reduce (study question 3). Samples will also be taken upstream and downstream of filtration BMPs to determine BMP effectiveness.



The monitoring targets selected for this Project Goal are as follows:

- Reduce TSS by 1,200/year
- Reduce total phosphorus by 3.5 kg/year
- Reduce total nitrogen by 25 kg/year
- Reduce fecal coliform by 100,000 billion colonies per year
- Reduce fecal enterococcus by 55,0000 billion colonies per year
- Reduce fecal streptococcus by 110,000 billion colonies per year
- Reduce total coliform by 170,000 billion colonies per year
- Reduce copper by 0.459 kg/year
- Reduce lead by 0.170 kg/year
- Reduce zinc by 3.334 kg/year

These targets are appropriate to demonstrate the improved water quality in the Dominguez Channel because they will directly show the reduction in these constituents. The tools and

methods described above will effectively monitor performance and progress because they will directly measure and analyze improvements to surface water quality.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater

It is anticipated that it will be feasible to meet the monitoring target by late 2017 because Project construction is anticipated to be complete by September 2016 and performance testing is expected to be complete by October 2016, in time for the rainy season. This is well within the expected Project lifespan of 25 years.

Improve Flood Protection

The Project will improve flood protection through the installation of stormwater BMPs that will improve drainage. Instances of street flooding in the vicinity will be monitored by the City of Los Angeles and compared to areas that are known to have instances of nuisance flooding.

The monitoring target selected for this Project Goal is a reduction in nuisance flooding. The tools and methods described above will effectively monitor performance and progress because they it will be possible to monitor standing water during storm events which causes nuisance flooding.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Maintain and enhance public infrastructure related to flood protection , water resources and water quality

It is anticipated that it will be feasible to meet the monitoring target by late 2017 because Project construction is anticipated to be complete by September 2016 and performance testing is expected to be complete by October 2016, in time for the rainy season. This is well within the expected Project lifespan of 25 years.

Reduce Greenhouse Gas Emissions – Carbon Sequestration

The Project will reduce greenhouse gasses through the sequestration of carbon by planted shade trees. In order to measure the performance outcome of these goals, the sequestration of carbon will be estimated according to the number of actual trees planted.

The data needed for these calculations will consist of trees planted, and conversion factors for the amount of carbon sequestered per tree; the data will be analyzed after collection using a database and Excel spreadsheets.

The monitoring target selected for this Project Goal is 3,015 kg of carbon sequestered per year. This target is appropriate to demonstrate the reduction in greenhouse gas emissions because it will directly demonstrate the greenhouse gas emission reductions made possible through the project.

It is anticipated that it will be feasible to meet the monitoring target by 2026 because Project construction is anticipated to be complete by September 2016 and the trees are expected to be matured within 10 years. This is well within the expected Project lifespan of 25 years.

Education

The Project will improve education through public events and will be measured through the administration of community surveys. A minimum of three survey events will be administered for the Project in order to gather baseline data and data on the public response to the completed project. Surveys will be administered in the language preferred by the community members, likely in Spanish or English. A number of methods may be employed to distribute the surveys, including but not limited to surveys given at community events or meetings, and door-to-door canvassing. These surveys can serve as a template for collecting data, and their results and lessons can be used to inform future projects.

Survey Event 1- The purpose of the first survey event will be to collect data and assess and baseline knowledge of residents in the general Project area. Some of the baseline information gathered will include but is not limited to residents' knowledge of local flora and fauna, which will be done along with a parallel assessment of bio-diversity conducted by the Project team (invasive species, native and ornamental plants, plant host species associations, insect and avian identification, plant maintenance status) information will be provided to the community following the baseline survey, and over the course of the Project and will encompass stormwater (understanding of their own watershed and the storm water system, what they perceive as the biggest sources of pollution, and their familiarity with stormwater BMPs). It will also be used to assess community interest and support for the project, both as installed by the city and as extended voluntarily by private residents.

Education-Following Survey Event 1, Heal the Bay will initiate an educational component of the Project in prioritized watersheds to inform them of water quality issues in their area utilizing tablings, outreach events, creek education, community meetings and a speaker to come to

classrooms within the area. Education to private property owners will inform them of options for decentralized BMPs that can be implemented on their property. Quarterly outreach will be performed during project construction.

Survey Event 2 will be used to assess the willingness of residents to install decentralized BMPs on their own property. Participating community members will be informed of a variety of BMP options to choose from the "BMP Toolbox", and will be educated and encouraged to perform their own installation, and (contingent on available funding) may be provided a financial incentive or free BMP device from the toolbox to aid in doing so. This survey will also seek to see which BMPs are preferred and why, and to identify reasons for unwillingness to participate and other barriers to implementation of BMPs from the toolbox.

Survey Event 3 will be used to gage community response to the Vermont Storm Water Capture and Green Street Beautification Project. It will incorporate follow up questions to the first survey to see if basic knowledge and education of the watershed, biodiversity, and storm water has increased as a result of the project, and if the community has general knowledge of the project. Survey 3 will also include questions as follow up to the on-site BMPs installed in order to determine successes and barriers to participation and BMP effectiveness. This survey will also compare operation and maintenance performed by individual private property owners who have onsite BMPs, along with neighborhood responses and the sense of ownership for the BMPs installed. Survey 3 will also attempt to assess other outcomes of the project, such as impact on neighborhood aesthetics, safety, and changes intermodal transportation use in the area.

Project proponents will evaluate results from the surveys. Results will be analyzed to see which BMPs worked best, and which fell short, as well as the reasons for these shortcomings. In addition, results of surveys and data collected on social impacts of the Project will be analyzed in order to answer the following questions:

- Does the community feel a sense of ownership of the project? How does this affect long term effectiveness of the project?
- How effective was public outreach for the project?
- What was the level (percentage) of community participation in private property retrofits?
- Does the project increase the public's knowledge of storm water pollution reduction? If so, to what extent?
- Has the community's behavior and attitude toward storm water pollution changed in response to the project?

- Which aspects of this project can serve as a template for other areas of the City?

The monitoring target selected for this Project Goal is an increase in public awareness about watersheds and stormwater quality. This target is appropriate to demonstrate the goal of increased education because it will demonstrate an increase in awareness about watersheds and water quality issues. The tools and methods described above will effectively monitor performance and progress because the survey results from the baseline survey can be compared against survey results after educational campaigns have taken place to demonstrate an increase in awareness.

It is anticipated that it will be feasible to meet the monitoring target by late 2017 because Project construction is anticipated to be complete by September 2016 and performance testing is expected to be complete by October 2016, in time for the rainy season. This is well within the expected Project lifespan of 25 years.

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Walnut Spreading Basin Improvements Project

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Walnut Spreading Basin Improvements Project (Project) will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. It provides a discussion of the monitoring system(s) to be used to verify Project performance with respect to the Project benefits and/or objectives identified; and it identifies data collection and analysis methods to be used by the proposed Project.

This attachment also discusses how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Greater Los Angeles County (GLAC) Integrated Regional Water Management (IRWM) Plan. The Project applicant has prepared a Project Performance Measures Table, **Table 6-13.** The table includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the Project
- Performance indicators – measures to evaluate change that is a direct result of the Project being built
- Measurement tools and methods – actions and procedures to effectively track performance

The Project will use the Project Performance Measures Table to develop and implement a Performance Measures and Monitoring Plan (as noted in Attachment 3) and continue to refine the performance measures as the Project proceeds. Project benefits are discussed in more detail in Attachments 7 and 8.

The Walnut Spreading Basin Improvements Project (Project) proposes to make several improvements to the Walnut Spreading Basin to improve percolation of stormwater, as well as improve downstream water quality and improve flood protection. These improvements include the following: cleanout of the basin to remove the fine sediments and clays to increase percolation rates and increased detention volume (approximately 5 acre-feet), installation of a pump station with two pumps to drain the facility, and new flow measurement equipment to monitor flow rates into and out of the basin.

These activities will be executed in order to meet the Project goals listed in Table 6-13. Project goals will each have performance measures that will be used to quantify and verify Project performance. The performance measures used to quantify and verify Project performance are described in narrative form in the Project Goals and Performance Measures section below.

Table 6-13: Performance Measures Table

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Supply – Increase percolation to the Main San Gabriel Groundwater Basin	Demonstrate effective capture and infiltration of stormwater	Increase recharge to the Main San Gabriel Groundwater Basin by 500 AFY, on average	Quantification of flow entering the spreading basin, rate of percolation info the basin	Record of local surface water flow to spreading basin as measured by monitoring equipment
Water Supply – Increase reliability	Reduce dependence on less reliable imported water supplies	Increase use of local surface water supplies by 500 AFY and decreased use of State Water Project (SWP) imported supplies by 500 AFY, on average	Quantification of local surface water and imported water use compared to baseline	Record of local surface water flow to spreading basin as measured by monitoring equipment Record of imported water deliveries to the Main San Gabriel Groundwater Basin pumpers from Annual Watermaster Reports
Delta Demands - Reduce Delta Demands to Help Address Bay-Delta Environmental Goals	Demonstrate decreased use of imported water from the SWP	Increase use of local surface water supplies by 500 AFY and decreased use of SWP imported supplies by 500 AFY, on average	Quantification of imported water use compared to baseline	Record of imported water deliveries to the Main San Gabriel Groundwater Basin pumpers from Annual Watermaster Reports

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Energy Conservation - Reduce energy from offset of SWP water	Reduce energy consumption from conveyance of imported water	Conserve 1,262,500 kWh per year of energy	Quantification of imported water use compared to baseline Quantification of the kWh per AF required to pump/convey SWP imported water to Los Angeles	Record of local surface water deliveries and imported water deliveries as measured by LADWP influent flow meters for each source at the water treatment plant Record of SWP energy demand requirements as reported by SWP
Greenhouse Gas Reduction – Reduce emissions	Reduce emissions of CO_2 equivalents from conveyance of imported water	Avoid 414 metric tons of CO_2 equivalents per year emitted	Quantification of kWh of energy conserved by the offset of SWP imported water Quantification of CO2 equivalents per kWh of energy	Record of local surface water deliveries and imported water deliveries as measured by influent flow meters for each source Climate Action Registry, General Reporting Protocol

Walnut Spreading Basin Improvements Project

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Quality - Reduce bacteria, copper, lead and nickel loadings to the San Gabriel River	Demonstrate improved surface water quality in Walnut Creek Wash	Decrease total coliform bacteria loading by 118 billion colonies per day, and E. coli by 1.6 billion colonies per day Decrease total copper loading by 0.05 pounds per day, and dissolved copper loading by 0.03 pounds per day Decrease total lead loading by 0.004 pounds per day, and dissolved lead loading by 0.002 pounds per day Decrease total nickel loading by 0.01 pounds per day, and dissolved nickel loading by 0.01 pounds per day	Water quality data of Walnut Creek Wash	Water quality sampling

Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
Water Quality – Avoid import of salts from outside the region	Demonstrate reduced import of salts from outside the region	Decrease salt import by 154 metric tons per year	Quantification of imported water use compared to baseline Quantification of the concentration of TDS in the imported water source	Record of imported water deliveries to pumpers as measured by Main San Gabriel Basin Watermaster Record of TDS concentrations in SWP imported water as reported by Metropolitan Water District of Southern California
Flood – Reduce downstream flood damage	Reduction of peak flows during flood events	Increase in percolation capacity of approximately 6 cfs	Quantification of increased percolation capacity	Record of local surface water flow to spreading basin as measured by monitoring equipment

Project Goals and Performance Measures

This section provides a discussion of the Project goals and describes how the monitoring systems will be used to verify each performance measure (summarized in Table 6-13). This section also describes how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

Water Supply – Increase Percolation to the Main San Gabriel Groundwater Basin, Increase Reliability, and Reduce Delta Demands

The Project goals to increase percolation to the Main San Gabriel Groundwater Basin (MSGB), improve reliability and reduce demands on the California Delta are linked for this Project. By recharging local surface water to the MSGB, additional ground water supply will be made available to pumpers. This supply is expected to offset the less reliable SWP supply and thus reduce demands on the Delta. Therefore, the same targets, performance indicators and tools can be used to measure progress in meeting these three performance measures.

In order to measure the performance outcome of the goals of improving water supply, reliability and decreased demands on the Delta, the volume of water entering the spreading basin and being infiltrated to the groundwater basin will be measured, and can be compared against baseline local and imported water use.

Measurements of water diversions to the spreading basin and infiltration will be made possible through the use of existing flow sensors that will be installed upstream and downstream of the intake of the spreading grounds to measure the amount of water captured and bypassed. This data will be measured and recorded by an existing ultrasonic flow meter. The data will ultimately be collected in a database for further analysis using Excel spreadsheets.

Baseline use of groundwater and imported water will be estimated based on water supply and demand as reported in Main San Gabriel Basin Watermaster Annual Reports. Water usage data following implementation of the Project will be collected from regular reporting of water supply usage by the Watermaster Annual Reports. Baseline and post-Project water use will then be compared to determine the reduction in imported water usage from the SWP versus local water usage, and will be analyzed using Excel spreadsheets.

The monitoring targets selected for these Project Goals are recharge of 500 AFY of stormwater, on average, from Walnut Creek Wash to the MSGB, and a reduction in imported water use from the SWP of 500 AFY. These targets are appropriate to demonstrate the increase of local water supply available from groundwater as they will demonstrate the increase in local water

availability and usage. The tools and methods described above will effectively monitor performance and progress because flow monitoring equipment will directly measure the quantity and movement of water if properly maintained and calibrated, and actual usage will indicate progress towards decreasing imported demand.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Optimize local water resources to reduce the Region's reliance on imported water

It is anticipated that it will be feasible to meet the monitoring target by 2016 because Project construction and performance testing are anticipated to be complete by 2015, in time for the rainy season. This is well within the expected Project lifespan of 50 years.

Increase Energy Conservation and Reduce Greenhouse Gas Emissions

The Project will increase energy conservation and reduce greenhouse gas emissions by reducing the amount of imported water delivered through an increase in the amount of groundwater available, as described above. Imported water delivery requires far more energy than groundwater pumping, as discussed in Attachment 7. In order to measure the performance outcome of these goals, the reduction in energy usage and reduction in greenhouse gasses emitted will be used. The reduction in energy usage will be verified by using estimates of energy used per acre-foot to deliver imported water and the energy used to pump groundwater in relation to the amount of local surface water recharged at the Walnut Spreading Basin. The data needed for these calculations will consist of local surface water recharged and conversion factors for the amount of energy needed to deliver these water supplies, and conversion factors for greenhouse gas emissions for a given kWh of energy; the data will be analyzed after collection using a database and Excel spreadsheets. Additionally, the LACFCD will keep records of SWP energy demand requirements by SWP to quantify energy conservation.

The monitoring targets selected for these Project Goals are 1,262,500 kWh per year and 414 metric tons of CO_2 equivalents emitted per year. These targets are appropriate to demonstrate the increase in energy conservation and reduction in greenhouse gas emissions because they will directly demonstrate the energy conservation and greenhouse gas emission reductions made possible through the Project.

It is anticipated that it will be feasible to meet the monitoring target by 2015 because Project construction and performance testing are anticipated to be complete by December 2014, in time for the rainy season. This is well within the expected Project lifespan of 50 years.

Improve Water Quality – Decrease loadings of bacteria, copper, lead and nickel to the San Gabriel River

The Project will improve water quality by implementing improvements that will increase percolation of local surface water from Walnut Creek Wash to the groundwater basin. In order to measure the performance outcome of this goal, a demonstrated reduction in loadings of bacteria, copper, lead and nickel to the San Gabriel River will be used. The data needed for water quality sampling consists of grab samples taken during storm events at Walnut Creek Wash. The samples will be sent to a lab which will test the samples for concentrations of bacteria, copper, lead and nickel, and will then send reports of findings to the LACFCD for collection in electronic format. The data will be analyzed after collection using Excel spreadsheets by comparing water quality before and after the Project.

The monitoring targets selected for this Project Goal are decreases in ammonia loading by 50 pounds per day, total coliform bacteria by 118 billion colonies per day, E. coli by 1.6 billion colonies per day, total copper loading by 0.05 pounds per day, dissolved copper loading by 0.03 pounds per day, total lead loading by 0.004 pounds per day, dissolved lead loading by 0.002 pounds per day, total nickel loading by 0.01 pounds per day, dissolved nickel loading by 0.01 pounds per day. These targets are appropriate to demonstrate the improved water quality Walnut Creek Wash because they will directly show the reduction in these constituents. The tools and methods described above will effectively monitor performance and progress because they will directly measure and analyze improvements to surface water quality.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater – The LACFCD will complete analyses of water quality that will include the results of monitoring of this Project to report progress on reducing pollutant loadings.

It is anticipated that it will be feasible to meet the monitoring target by 2015 because Project construction and performance testing are anticipated to be complete by December 2014, in time for the rainy season. This is well within the expected Project lifespan of 50 years.

Improve Water Quality – Avoid import of salts from outside the region

The Project will improve water quality by avoiding the import of 154 metric tons per year of Total Dissolved Solids (TDS), or salts, from outside the Greater Los Angeles Region. The reduction in TDS into the Region as a result of the Project will be quantified by recording water

recharge and SWP imported water deliveries as measured by the Main San Gabriel Basin Watermaster; TDS concentrations in SWP imported water will also be collected and recorded.

It is anticipated that it will be feasible to meet the monitoring target by late 2015 because Project construction and performance testing are anticipated to be complete by December 2014, in time for the rainy season. This is well within the expected Project lifespan of 50 years.

Improve Flood Protection

The Project will improve flood protection by making the following improvements at the Walnut Spreading Basin: cleanout of the basin to remove the fine sediments and clays, and installation of a pump station. In order to measure the performance outcome of this goal, the volume of water entering the spreading basin and being infiltrated to the groundwater basin will be measured, and can be compared against baseline use.

Measurements of water diversions to the spreading grounds and infiltration will be made possible through the use of existing flow sensors. The data will be collected in a database for further analysis using Excel spreadsheets.

The monitoring targets selected for this Project Goal is an increase in percolation of 6 cfs. This target is appropriate to demonstrate improved flood protection because it will reflect a 6 cfs reduction in flow in Walnut Creek Wash. The tools and methods described above will effectively monitor performance and progress because flow monitoring equipment will directly measure the quantity and movement of water if properly maintained and calibrated.

Using these performance measures, monitoring system, and data collection/analysis, the following IRWM Plan goals and objectives may be measured and demonstrated:

- Maintain and enhance public infrastructure related to flood protection, water resources and water quality

It is anticipated that it will be feasible to meet the monitoring target by 2015 because project construction and performance testing is anticipated to be complete by December 2014, in time for the rainy season. This is well within the expected Project lifespan of 50 years.