

Department of Public Works

Emergency Catch Basin Cleaning Project Performance Audit

December 12, 2019



Derry Harper Esq., CIG



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Re: Emergency Catch Basin Cleaning Project Performance Audit

I certify that the inspector general personnel assigned to this project are free of personal or other external impairments to independence.

A handwritten signature in blue ink, which appears to read 'Derry Harper', is located below the certification text. The signature is written in a cursive, flowing style.

Derry Harper Esq., CIG

Inspector General

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As detailed in its performance audit of the Department of Public Works (DPW) Emergency Catch Basin Project (Project) released today, the Office of Inspector General for the City of New Orleans (OIG) concluded the contracted entities performed the services in accordance with the scope of work required by the project contract.

On August 5, 2017, the City of New Orleans (City) experienced a storm that resulted in extreme flooding throughout the City and loss of power to major Sewerage & Water Board of New Orleans (S&WB) facilities. The flooding exposed the lack of maintenance and the need for additional investment in drainage infrastructure. Community residents reported some of the flooding was due to clogged catch basins.¹ As a result, the DPW initiated the Project to clean 15,000 catch basins and repair as many as possible with the available funding.²

In 2017, DPW awarded contracts to Royal Engineering (Royal), RamJ Construction (RamJ), Compliance EnviroSystems (CES), and Hard Rock Construction (Hard Rock) to perform inspections, cleanings, and/or repairs to catch basins. DPW began the Project on August 24, 2017, and completed it on June 29, 2018. During the Project, DPW spent \$16.6 million to inspect over 26,000 catch basins, clean over 15,000 catch basins and repair approximately 3,400 catch basins. DPW spent \$1.6 million less than the budgeted amount. Refer to Figure 1 below.

Figure 1. Project Summary and Cost³

Contractor	Work Performed	# Catch Basins	Total Budgeted	Total Cost
Royal	Inspected	26,095	\$ 4,282,978	\$ 4,233,800
CES/RamJ	Cleaned	15,643	\$ 5,374,989	\$ 3,840,807
Hard Rock	Repaired	3,408	\$ 8,566,875	\$ 8,562,823
Total			\$ 18,224,842	\$ 16,637,430

¹ Catch basins are located below street level and allow water to flow through an opening at street level.

² DPW initially budgeted \$22.0 million for the Project, but it reduced the budget during the course of the Project by \$3.8 million to fund a drain-point repair project. As a result, DPW’s final budget for the Project totaled \$18.2 million.

³ During the course of the Project, Royal inspected 26,095 catch basins; although not all of those catch basins required cleaning and/or repair. For example, a catch basin may be inspected and cleaned but not repaired, or a catch basin may be inspected, cleaned and repaired, etc. As such, the total catch basins cleaned and repaired will not sum to 26,095.

During the course of the Project, OIG auditors conducted a performance audit to determine if the contractors inspected, cleaned, and/or repaired the catch basins in accordance with the contract specifications and to determine whether work was performed based on the contracted rates. OIG auditors selected a statistical sample of 400 catch basins.⁴ As summarized below, the OIG made the following positive findings.

I. POSITIVE FINDINGS

- All contractors completed the inspections, cleanings, and/or repairs in accordance with the scope of work required by the contract
- All contractors billed for their services according to the respective contract terms.
- Contractors did not bill more than the authorized amount and all invoices were properly approved.
- Contractors met the time requirements established by the contracts.

II. OBSERVATIONS

- Due to the number of catch basins needing repair, the \$8.6 million funding allocated for repairs was not sufficient to complete all of the repairs to the catch basins deemed necessary during the Project.
- Although contractors cleaned 15,643 catch basins and repaired 3,408 catch basins, the underlying drainage infrastructure may be clogged and/or broken. Therefore, water may not drain properly through the cleaned and/or repaired catch basins, which could contribute to localized flooding.

III. CONCLUSION

The DPW should complete the catch basin repairs not included within the scope of this Project. In recent months, the DPW and the S&WB began to develop a plan to clean, repair, and/or replace the drainage collection lines throughout the city to minimize any future risk of potential flooding.⁵

⁴ Refer to the Objectives, Scope, and Methodology section in this report for details of the sampling methodology.

⁵ "The State of the Utility 2019." Ghassan Korban, Executive Director of S&WB, presentation to Bureau of Governmental Research. May 14, 2019.

I. INTRODUCTION

D PW consists of five divisions, and it is “responsible for maintaining approximately 1,547 miles of streets... and 149 bridges in New Orleans. This infrastructure system includes 65,000 catch basins and approximately 8,200,000 linear feet of drain lines.”⁶

DPW and the S&WB are responsible for maintaining sub-surface drainage. DPW is responsible for maintaining all catch basins, including all catch basin laterals and drain lines smaller than 36 inches. The S&WB is responsible for maintaining all catch basin laterals and drain lines 36 inches and larger.⁷

The sub-surface drainage system consists of multiple components, including catch basins. Catch basins are located below street level and allow water to flow through an opening at street level. The opening should have a covering that prevents debris from entering the catch basin. Refer to Figure 2 for a picture of a catch basin lid and opening. Once the water enters the catch basin through the opening, it flows through a smaller pipe, known as a lateral pipe, and then through a larger drainage collection line. Refer to Figure 3 for a picture of a catch basin lateral pipe.

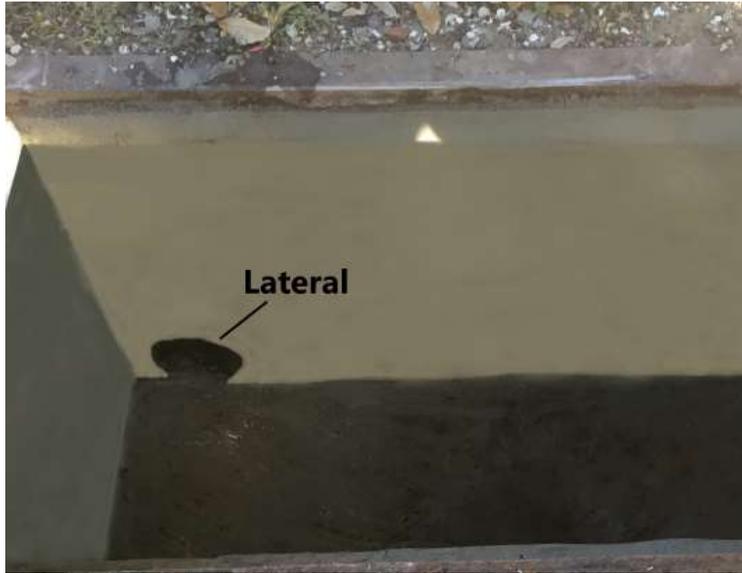
Figure 2: Catch Basin Lid and Opening



⁶ City of New Orleans, Department of Public Works. Accessed May 20, 2019. <https://nola.gov/dpw/>.

⁷ *Agreement between City of New Orleans, Department of Streets and Sewerage and Water Board of New Orleans*. July 1, 1992.

Figure 3: Catch Basin Lateral Pipe



Once water enters the drainage collection line, it flows to a pumping station via canals and/or underground culverts. At the pumping station, the water is pushed through outfall canals and/or other discharge structures. Ultimately, the water is pumped into surrounding waterways such as the Industrial Canal, the Mississippi River, or Lake Pontchartrain.

On July 22, 2017, a rainstorm caused localized flooding in the New Orleans area. On August 5, 2017, the City experienced a storm that resulted in extreme flooding and loss of power to major S&WB facilities. Although the flooding exposed the lack of maintenance and the need for additional investment in drainage infrastructure, community residents also reported some of the flooding was due to clogged catch basins.

In August 2017, DPW disclosed to the City Council that it cleaned 3,200 catch basins that year, and it only had the resources to clean approximately 3,500 catch basins per year. With more than 65,000 catch basins in the City, it would take approximately 19 years to clean each catch basin once. As a result, the City decided that DPW should initiate the Emergency Catch Basin Project which would identify 15,000 catch basins that needed cleaning and/or repair. On August 17, 2017, the City Council approved intergovernmental transfers of \$12.0 million to

DPW to provide partial funding for the Project.^{8,9} The remaining \$10.0 million in funding was appropriated to DPW in its 2017 annual budget.

DPW reduced the budget during the course of the Project by \$3.8 million to fund a drain-point repair project. DPW ultimately spent \$11.0 million on repairs and \$5.7 million on cleanings and inspections.¹⁰ See Figure 4 below for details.

Figure 4: DPW Emergency Catch Basin Project Original Budget vs. Actual Cost

Purpose	Funding	Original Budget	Amended Budget	Actual Cost
Catch Basin Inspections & Cleanings	General Fund	\$ 7,800,000	\$ 7,204,435	\$ 5,670,252
Catch Basin Repairs	Capital	\$ 14,200,000	\$ 11,020,407	\$ 10,967,178
	Total	\$ 22,000,000	\$ 18,224,842	\$ 16,637,430

In 2017, DPW awarded contracts to Royal, RamJ, CES, and Hard Rock to perform inspections, cleanings, and/or repairs to the catch basins. Under the terms of the contract, DPW authorized Royal, RamJ, CES, and Hard Rock to spend \$4,282,978, \$77,739, \$5,297,250, and \$8,566,875, respectively.

The Project began on August 24, 2017, and ended on June 29, 2018. To manage the Project, Royal used Salesforce, a cloud-based customer-relationship management database that provided real-time information to DPW and each contractor. DPW and the contractors could generate on-demand reports, access real-time information (e.g. the status of all work scheduled and performed), and create billing reports in Salesforce. Royal uploaded before and after pictures of each catch basin and other documentation to substantiate the work performed.

Royal was responsible for identifying the catch basins in need of cleaning and/or repair. First, Royal identified catch basins located in the areas that flooded during

⁸ City of New Orleans. Municipal Code Nos. 27498 thru 27499 Mayor Council Series. Special Session, August 17, 2017.

⁹ Intergovernmental transfers are transfers of funds originally assigned to one governmental entity but reassigned to a different entity to provide funding for needs that arise throughout the year.

¹⁰ DPW funded the \$11.0 million for repairs with capital bonds and the \$5.7 million for inspections and cleaning with money from the general fund.

the July and August 2017 storms and clogged catch basins that residents reported in unresolved 311 calls. After Royal inspected catch basins in those areas, contracted managers identified catch basins in other areas of the City that were not included in the scope of other projects or contracts (e.g. FEMA repairs).

Royal assigned two-man teams to perform a pre-inspection of each catch basin. The purpose of the pre-inspection was to determine if it needed to be cleaned and/or repaired.

Once Royal identified the catch basins that needed to be cleaned and/or repaired, CES assigned crews to first clean those catch basins. Royal also assigned a supervisor to each CES cleaning crew. The CES/Royal crew worked together to assess the work needed on each catch basin and to ensure CES cleaned each catch basin properly. After CES cleaned the catch basin, the Royal supervisor assigned to the CES crew inspected the catch basin to determine if it required repairs. If Royal identified a catch basin that needed repair, Hard Rock performed the repairs. Although a supervisor was not assigned to each repair crew full-time, Royal supervisors managed the repair process through site visits. After the crews completed the work, Royal managers reviewed the work performed to make sure it was completed. Then, they marked the task as complete in Salesforce. Refer to Figure 5 for a list of contractors and their general responsibilities.

Figure 5: Contractor General Responsibilities

Contractor	General Responsibilities
Royal Engineering	<ul style="list-style-type: none"> • Pre-inspection to determine scope of work (i.e. cleaning and/or repair). • Post-inspection to determine if cleaning/repair was completed in accordance with contract specifications. • Review contractor invoicing and recommend payment. • Overall quality control.¹¹
RamJ Construction ¹²	<ul style="list-style-type: none"> • Cleaning of existing catch basins and catch basin laterals.¹³ • Assessment of existing catch basins and catch basin laterals.
Compliance EnviroSystems ¹⁴	<ul style="list-style-type: none"> • Cleaning of existing catch basins and catch basin laterals.¹⁵ • Assessment of existing catch basins and catch basin laterals.
Hard Rock Construction ¹⁶	<ul style="list-style-type: none"> • Adjustments, rehabilitation, and repairs to existing catch basins and catch basin laterals. • Placement of new curbs/gutter bottoms. • Removal of existing curbs and gutter bottoms. • Adjustments to existing manholes.

¹¹ "Amendment No. 1 to a Professional Services Agreement between the City of New Orleans and Royal Engineers & Consultants, L.L.C. Citywide Construction Administration and Resident Inspection Services (Emergency Catch Basin Cleaning and Repairs)." MK17-1010. August 23, 2017.

¹² "Emergency Contract between the City of New Orleans and RAMJ Construction, LLC. ITB No. 5001-02260 Emergency Catch Basin Cleaning." MK17-1011. September 6, 2017.

¹³ DPW cancelled the RAMJ contract on September 21, 2017, when it determined that RamJ could not meet its contractual obligations and "failed to properly dispose of waste material in a lawful manner." "Notice of Default & Termination for Cause. Re: Bid Contract for Emergency Catch Basin Cleaning Services between the City of New Orleans and RAMJ Construction, LLC – Contract No. MK17-1011 (the 'Contract')." September 21, 2017. RamJ performed 363 cleanings at the time the contract was cancelled.

¹⁴ "Emergency Contract between the City of New Orleans and Compliance EnviroSystems, LLC. ITB No. 5001-02260 Emergency Catch Basin Cleaning." MK17-1150. September 21, 2017.

¹⁵ CES replaced RamJ on September 21, 2017. CES cleaned the remaining 15,280 catch basins"

¹⁶ "Emergency Contract between the City of New Orleans and Hard Rock Construction, LLC." MK17-1012. September 21, 2017.

II. WORK PERFORMANCE

During the Project, Royal inspected 26,095 catch basins to determine if they needed to be cleaned and/or repaired. Auditors randomly selected 400 catch basins to determine if each contractor performed the services in accordance with the scope of work required by their respective contract.

To document the work performed in Salesforce, Royal uploaded all before and after photographs, daily work schedules, charges for services rendered, and various other documentation related to the inspection, cleaning, and/or repair of each catch basin. The photographs were GPS stamped to indicate the location of the catch basin. Auditors reviewed and inspected this documentation to determine if the catch basins appeared to need cleaning and/or repair and to determine if the contractor completed the work in accordance with the terms of the contract. Refer to Figure 6 below for a breakdown of the catch basins inspected, cleaned, and repaired during the Project as well as the sample tested.

Figure 6. Breakdown of Catch Basins Tested¹⁷

	# Catch Basins	# Sampled Catch Basins
Inspected	26,095	400
Cleaned	15,643	223
Needing Repair	8,561	133
Repaired	3,408	52

Positive Finding 1: All contractors completed the inspections, cleanings, and/or repairs in accordance with the scope of work required by the contracts.

ROYAL (INSPECTIONS)

The Royal contract required:

- Perform a “[p]re-inspection of all catch basin locations...

¹⁷ During the course of the Project, Royal inspected 26,095 catch basins; although not all of those catch basins required cleaning and/or repair. For example, a catch basin may be inspected and cleaned but not repaired, or a catch basin may be inspected, cleaned and repaired, etc. As such, the total catch basins cleaned, repaired, and needing repair will not sum to 26,095.

- Develop scope of work for contractor[s] at all locations...
- Monitor and track construction progress...
- Observe construction at all times the contractor is working on critical work items...
- Photograph and/or document work progress...
- Review pay applications and recommend payment....”¹⁸

Royal was also “given the authority to control the workflow of [the] contractor[s].”¹⁹

Royal’s supervisors photographed and provided comments in Salesforce that supported the need for cleanings and/or repairs. For the sample tested, auditors viewed photographs, and assessed supervisory notes and manager approvals in Salesforce to determine if the catch basin needed cleaning and/or repair. Auditors subsequently agreed the catch basins needed cleaning if debris or other obstructions were located in or around the catch basins, which may prevent the flow of water from the streets to the drainage system. Auditors also agreed that the catch basin needed repair if the lid was missing or broken, the opening was blocked or higher than the street, or the walls were cracked, etc.

Auditors confirmed Royal properly inspected the 400 sampled catch basins in accordance with the contract terms. Auditors concluded Royal properly determined if the sampled catch basins needed cleaning and/or repair. Auditors also noted Royal developed a scope of work consistent with the type of cleaning and/or repairs as evidenced by the photographs. No exceptions were noted.

Auditors viewed photographs of the repair process as well as the supervisory notes during the repair process and manager approvals to determine if Royal monitored and tracked the construction progress as well as observing critical phases of construction. No exceptions were noted.

¹⁸ “Amendment No. 1 to a Professional Services Agreement between the City of New Orleans and Royal Engineers & Consultants, L.L.C. Citywide Construction Administration and Resident Inspection Services (Emergency Catch Basin Cleaning and Repairs).” MK17-010. August 23, 2017.

¹⁹ Ibid.

CES/RAMJ (CLEANINGS)

The CES/RAMJ contracts required:

- “Cleaning of existing catch basins including, but not limited to, the front of the catch basin/gutter bottom, inside the catch basin, and the catch basin laterals.
- Assessment of existing catch basins and laterals.”^{20,21}

CES and RamJ uploaded before and after photos in Salesforce of each catch basin cleaned. The before photographs showed debris or other obstructions were located in or around the catch basin, which may prevent the flow of water from the streets to the drainage system. The after photographs showed each contractor removed the debris and/or obstructions. For the 223 sampled catch basins, auditors viewed those photographs as well as any notes pertaining to the cleaning and determined that each contractor assessed and cleaned each catch basin (including the lateral) in accordance with the contract terms. No exceptions were noted.

HARD ROCK (REPAIRS)

The Hard Rock contract required that Hard Rock perform:

- “Adjustments to existing catch basins...
- Rehabilitation of existing catch basins...
- Repairs to existing catch basins....”²²

Royal supervisors uploaded multiple photographs and notes documenting the work performed throughout the stages of repair. For the 52 sampled catch basins, auditors observed the photographs and supervisory notes in Salesforce for each of the catch basins before, during, and after the repairs. The initial photographs showed that the catch basin needed repair as evidenced by a missing or broken lid, a blocked or uneven opening, cracked walls, etc. Photographs taken during the

²⁰ “Emergency Contract between the City of New Orleans and Compliance EnviroSystems, LLC. ITB No. 5001-02260 Emergency Catch Basin Cleaning.” MK17-1150. Section 1.02(B). September 21, 2017.

²¹ Ibid.

²² “Emergency Contract between the City of New Orleans and Hard Rock Construction, LLC.” MK17-1012. Section 1.02(B). September 21, 2017.

repairs showed the various stages of repair. The final photographs showed that each contractor completed the repair in accordance with the scope of work. No exceptions were noted.

III. CONTRACT COSTS AND BILLING

Each contract established a cost structure the DPW paid for the services performed. DPW paid Royal, RamJ, and CES a fixed cost to inspect or clean each catch basin. The repair cost paid to Hard Rock varied based on the nature of the repair. Each contractor billed the following costs to the DPW:

Royal

- \$37.00 for each pre-cleaning inspection. The purpose of the pre-cleaning inspection was to determine if the catch basin needed to be cleaned and/or repaired,
- \$31.00 for each post-cleaning inspection. The purpose of the post-cleaning inspection was to ensure each contractor cleaned each catch basin in accordance with the contract terms,
- \$995,020 flat rate for cleaning and repair administration, and
- \$1,503,575 for repair inspections.

RamJ

- \$150.00 per catch basin surface cleaned,
- \$100.00 per catch basin interior cleaned, and
- \$3.50 per linear foot of lateral pipe cleaned.²³

CES

- \$34.90 per catch basin surface cleaned,
- \$244.00 per catch basin interior cleaned, and
- \$4.95 per linear foot of lateral pipe cleaned.²⁴

Hard Rock

- Repair costs varied based on the nature of the repair. Refer to Appendix B for individual costs.

²³ "Emergency Contract between the City of New Orleans and RamJ Construction, LLC. ITB No. 5001-02260 Emergency Catch Basin Cleaning." MK17-1011. Unit Price Form. September 6, 2017.

²⁴ "Emergency Contract between the City of New Orleans and Compliance EnviroSystems, LLC. ITB No. 5001-02260 Emergency Catch Basin Cleaning." MK17-1150. Unit Price Form. September 21, 2017.

Positive Finding 2: All contractors billed for their services according to the respective contract terms.

OIG auditors selected 400 catch basins for testing. Auditors viewed Salesforce pictures and contractor invoices and confirmed that the charges on the invoices agreed with the nature of the work performed. OIG auditors also recalculated the charges for the work performed, based on the contractually agreed upon prices, and compared the total to the charges billed on the invoice. No exceptions were noted. All work performed on the catch basins tested was documented in Salesforce and the amounts the contractors charged to the DPW agreed to the contractual amounts. No exceptions were noted. Refer to Figure 7 below for the total cost per contractor.

Figure 7: Actual Cost Per Contractor

Contractor	Service Performed	Actual Cost
Royal	Inspection & Admin	\$ 4,233,800
RamJ	Cleaning	\$ 77,739
CES	Cleaning	\$ 3,763,068
Hard Rock	Repairs	\$ 8,562,823
	Total	\$16,637,430

IV. PROJECT MANAGEMENT CONTROLS

Royal was responsible for developing the scope of work for each contractor and monitoring the progress of the Project.²⁵ To avoid a \$1,000 daily penalty, the contracts required CES and Hard Rock to complete the cleanings and repairs within 120 days and 240 days from the start of work, respectively.²⁶

Royal was required to review and approve all contractors' invoices before submitting them to DPW.²⁷ Upon receipt, the DPW Project Manager was required to review and approve all invoices before submitting them for payment.

INVOICING CONTROLS

Auditors obtained all 42 invoices submitted to the DPW by the contractors to determine if the contractors remained within the contractually authorized limits. Auditors also examined the invoices to determine if Royal supervisors and the DPW Project Manager reviewed and approved each invoice before submitting it to the DPW for payment.

Positive Finding 3: Contractors did not bill more than the authorized (budgeted) amount and all invoices were properly approved.

A Royal supervisor approved all invoices before submitting them to the DPW. The DPW Project Manager then approved all invoices before submitting them for payment. The total amount billed for the completed Project was \$1.6 million less than the total authorized amount. See Figure 8 for details.

²⁵ "Amendment No. 1 to a Professional Services Agreement between the City of New Orleans and Royal Engineers & Consultants, L.L.C. Citywide Construction Administration and Resident Inspection Services (Emergency Catch Basin Cleaning and Repairs)." MK17-010. August 23, 2017.

²⁶ As a result of weather delays, on May 3, 2018, DPW granted a 26-day extension for repairs which extended the completion due date to July 1, 2018.

²⁷ "Amendment No. 1 to a Professional Services Agreement between the City of New Orleans and Royal Engineers & Consultants, L.L.C. Citywide Construction Administration and Resident Inspection Services (Emergency Catch Basin Cleaning and Repairs)." MK17-010. August 23, 2017.

Figure 8. Authorized Amounts and Total Cost per Contractor

Contractor	Authorized Amount	Amount Billed	Amount Under/ (Over) Billed
Royal	\$ 4,282,978	\$ 4,233,800	\$ 49,178
RamJ	\$ 77,739	\$ 77,739	\$ 0
CES	\$ 5,297,250	\$ 3,763,068	\$ 1,534,182
Hard Rock	\$ 8,566,875	\$ 8,562,823	\$ 4,052
Total	\$18,224,842	\$ 16,637,430	\$ 1,587,412

TIME LIMIT CONTROLS

Auditors obtained the authorized start dates for all contractors. The auditors also examined invoices and other documentation in Salesforce to determine if the contractors completed the work within the contractually agreed upon timelines.

Positive Finding 4: Contractors met the time requirements set by the contracts.

The Project began on August 24, 2017, and ended on June 29, 2018. CES completed all catch basin cleanings within the 120-day timeline established in the contract.²⁸ Hard Rock completed all catch basin repairs within the 266-day time limit set forth in the contract and extension.²⁹ See Figure 9 for details.

Figure 9. Required and Actual End Dates

Contractor	Start Date	Required End Date	Actual End Date
Royal ³⁰	8/23/2017	N/A	7/30/2018
RamJ	9/6/2017	1/3/2018	9/21/2017
CES	9/26/2017	1/26/2018	1/26/2018
Hard Rock	10/10/2017	7/1/2018	6/29/2018

²⁸ "Emergency Contract between the City of New Orleans and Compliance EnviroSystems, LLC. ITB No. 5001-02260 Emergency Catch Basin Cleaning." MK17-1150. Article IV(A). September 21, 2017.

²⁹ Plan Changes and/or Special Agreement No. 4. City of New Orleans, Department of Public Works. May 3, 2018.

³⁰ Royal did not have a time limit established in their contract.

DDPW committed to cleaning at least 15,000 catch basins during the Project. During that time, 26,095 catch basins were inspected, 15,643 of those catch basins were cleaned, and 8,561 catch basins needed repairs. However, only 3,408 of those catch basins were repaired.³² The City met its goal of cleaning 15,000 catch basins at a total cost of \$16.6 million which was less than the \$18.2 million amended budget. In 2020, the DPW will have 12 vacuum trucks and operating crews. DPW's plan for 2020 and beyond is for the vacuum crews to clean all catch basins every two to three years.

Auditors noted two issues during fieldwork that were not within the scope of the audit.

Although contractors cleaned 15,643 catch basins and repaired 3,408 catch basins, the underlying drainage infrastructure may be clogged and/or broken. Therefore, water may not drain properly through the cleaned and/or repaired catch basins, which could contribute to localized flooding. According to DPW managers, drainage collection lines are often clogged and/or broken. The drainage collection lines allow water collected by the catch basins to be carried away from the area. Therefore, the catch basins can only function properly if the drainage collection lines are also in proper working order.

The cleaning, repair, and/or replacement of the drainage collection lines was not within the scope of the Project. To recognize the full benefits of the catch basin cleaning and repairs, the drainage collection lines also need to be cleaned and/or repaired. The DPW and the S&WB have begun to develop a plan to clean, repair, and/or replace the drainage collection lines.³³ On May 14, 2019, the Executive Director of the S&WB discussed a plan for DPW and S&WB to work together to repair and replace underlying water and drainage infrastructure within the City.

The \$8.6 million funding allocated for catch basin repairs was not sufficient to complete all of the repairs deemed necessary during the Project. During the

³¹ OIG auditors did not audit this information.

³² The number of catch basins inspected, cleaned, and/or repaired was based on the number of catch basins billed to the City.

³³ "The State of the Utility 2019." Ghassan Korban, Executive Director of S&WB, presentation to Bureau of Governmental Research. May 14, 2019.

Project, Royal identified 8,561 catch basins that needed repair; however, Hard Rock was only able to complete repairs on 3,408 (39.8 percent) of those catch basins because of a lack of funding. According to estimates from Royal, the cost to complete the repairs on the remaining 5,153 catch basins was \$10.8 million.

VI. CONCLUSION

During the course of the Project, DPW spent \$11.0 million on repairs and \$5.7 million on cleanings and inspections for a total cost of \$16.7 million. DPW committed to cleaning at least 15,000 catch basins during the Project. Royal inspected 26,095 catch basins, and CES/RamJ cleaned 15,643 catch basins. Royal identified 8,561 catch basins that needed repairs, but Hard Rock only repaired 3,408 of those catch basins due to a lack of funding.³⁴

Auditors noted:

- All contractors completed the inspections, cleanings, and/or repairs in accordance with the scope of work required by the contract.
- All contractors billed for their services according to the respective contract terms.
- Contractors did not bill more than the authorized amount and all invoices were properly approved.
- Contractors met the time requirements established by the contracts.

Although contractors cleaned 15,643 catch basins and repaired 3,408 catch basins, the underlying drainage infrastructure may be clogged and/or broken. Therefore, water may not drain properly through the cleaned and/or repaired catch basins, which could further contribute to localized flooding. Furthermore, the \$8.6 million funding allocated for catch basin repairs was not sufficient to complete all of the repairs to the catch basins deemed necessary during the Project.

For the City to recognize the full benefit of the catch basin cleaning and repairs and minimize the potential risk for flooding, DPW and the S&WB should clean, repair, and/or replace the drainage collection lines and complete the repairs that were not completed as part of the Project. To address this concern, S&WB provided a plan to repair and replace the underlying water and drainage infrastructure within the City.³⁵

³⁴ The number of catch basins inspected, cleaned, and repaired was based on the number of catch basins billed to the City.

³⁵ "The State of the Utility 2019." Ghassan Korban, Executive Director of S&WB, presentation to Bureau of Governmental Research. May 14, 2019.

APPENDIX A. OBJECTIVES, SCOPE, AND METHODOLOGY

The OIG conducted a performance audit of the DPW Emergency Catch Basin Project. DPW began the Project on August 24, 2017, and completed it on June 29, 2018. The OIG auditors performed this audit to determine whether the contractors inspected, cleaned, and/or repaired the catch basins in accordance with the scope of work and to determine whether work was performed based on the contracted rates:

1. Amendment No. 1 to a Professional Services Agreement Between the City of New Orleans and Royal Engineers & Consultants, L.L.C., Citywide Construction Administration and Resident Inspections Services (Emergency Catch Basin Cleaning and Repairs), MK17-1010;
2. Emergency Contract Between the City of New Orleans and Compliance Envirosystems, LLC, ITB No. 5001-02260 Emergency Catch Basin Cleaning, MK17-1150;
3. Emergency Contract Between the City of New Orleans and Hard Rock Construction, L.L.C., MK17-1012; and
4. Emergency Contract Between the City of New Orleans and RamJ Construction, LLC, ITB No. 5001-02260 Emergency Catch Basin Cleaning.

The scope of the audit included all 26,095 catch basins inspected between August 24, 2017, and June 29, 2018.

The scope of this audit was limited to the contractual provisions noted within this audit report. The OIG does not assert that DPW complied with any additional contractual requirements because the OIG did not perform audit procedures to determine compliance with any other contractual provisions. Management, those charged with governance, and/or other readers should not infer that DPW complied with any other contract provisions.

To accomplish the objectives, auditors performed the following procedures:

- Obtained copies of the four contracts awarded by the DPW;
- Gained an understanding of the processes involved in the Project, including conducting interviews and walkthroughs with DPW personnel and Royal managers;

- Performed site visits to observe the inspection, cleaning, and repair process;
- Obtained all invoices submitted for payment to DPW to determine if the contractors remained within the contractually authorized limits;
- Compiled a listing of all catch basins inspected and randomly selected a sample of 400 catch basins to determine if the catch basins were: ³⁶
 - Inspected, cleaned, and/or repaired in accordance with the scope of work in the contracts; and
 - Billed according to the rates specified in the contracts; and³⁷
- Evaluated documentation in Salesforce to determine if the Project met the stated goals of cleaning and repairing (as needed) 15,000 catch basins.

To determine if the contractors resolved outstanding 311 calls related to clogged and/or broken catch basins, auditors randomly selected 25 catch basin calls that were still marked as unresolved on the 311 listing as of September 1, 2017, and determined those 311 catch basins were properly included in the Project.³⁸

Auditors assessed the reliability of computer-processed data by interviewing officials knowledgeable of Salesforce, comparing data to source documents for reliability, and reviewing selected system controls. Auditors determined the data were sufficiently reliable for the purposes of this report.

³⁶ Not all catch basins selected for testing were cleaned and/or repaired. Therefore, the confidence levels and margins of error for each contract were as follows: Royal (inspections) 95 percent confidence level, 0.75 percent margin of error; Royal (cleanings) 95 percent confidence level, 1.33 percent margin of error; RamJ 95 percent confidence level, 34.81 percent margin of error; CES 95 percent confidence level, 1.38 percent margin of error; Hard Rock 95 percent confidence level, 5.5 percent margin of error.

³⁷ Because the sample was randomly selected, auditors were able to project the error (if any) to the population.

³⁸ The 311 service allows citizens to call in problems they are experiencing within the City to one centralized location. The problems are then passed along to the responsible department for resolution. DPW stated that the Project would address any 311 calls related to catch basins that were not resolved prior to the start of the Project. Catch basins are not located outside of every home or business. For that reason, the caller's address may not directly correlate to a particular catch basin. Auditors examined the catch basin map in Salesforce to locate the closest catch basin to the caller's address.

Auditors used the aforementioned contracts as well as the DPW’s publicly stated objectives for the Project as criteria for this performance audit.

AUDITING STANDARDS

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards (GAGAS) issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.³⁹

Auditors conducted this performance audit in accordance with the *Principles and Standards for Offices of Inspector General*.⁴⁰

LEGAL AUTHORITY

The authority to perform this audit is established in LA Rev. Stat § 33:9613 and in City Code Sec. §2-1120 of the City of New Orleans.

³⁹ *Government Auditing Standards, Chapter 7.30*; U.S. Government Accountability Office. 2011.

⁴⁰ “Quality Standards for Audits by Offices of Inspector General,” *Principles and Standards for Offices of Inspector General* (Association of Inspectors General). 2014.

APPENDIX B. CONTRACTED REPAIR COSTS FOR HARD ROCK

Description	Unit of Measure	Unit Price
Removal and disposal of existing pavement (all types)	Square yard	\$ 30.00
Removal and disposal of existing curb and/or gutter bottom (concrete, asphalt, brick, stone, etc.)	Linear foot	\$ -
Geotextile fabric for stabilization	Square yard	\$ 2.00
Geogrid	Square yard	\$ 2.00
Base course	Cubic yard	\$ 195.00
Reinforced concrete pavement (8" thick)	Square yard	\$ 100.00
Type A catch basin adjustment	Each	\$ 555.00
Type B catch basin adjustment	Each	\$ 2,100.00
Type C catch basin adjustment	Each	\$ 4,400.00
Rehabilitate existing catch basin	Each	\$ 500.00
Adjust manhole or drop inlet up to 6" with brick and mortar	Each	\$ 400.00
Concrete mountable curb with or without dowels (straight, circular, or depressed)	Linear foot	\$ 10.00
Standard catch basin lid installation	Each	\$ 570.00
Mountable or drop inlet catch basin lid installation	Each	\$ 570.00
Catch basin repair (all types)	Each	\$ 1,000.00
Point repair of existing catch basin lateral (all sizes)	Linear foot	\$ 123.00
Superpave asphaltic concrete binder course (5" thick)	Ton	\$ 250.00
Superpave asphaltic concrete binder course (2" thick)	Ton	\$ 250.00
Cuts in existing drain line and install standard drain manhole	Vertical foot height	\$ 941.17
Concrete sidewalk 4" thick	Square yard	\$ 161.75
Concrete sidewalk 6" thick	Square yard	\$ 169.03
Brick sidewalk	Square yard	\$ 280.55
Exploratory excavation of point repair	Each	\$ 2,369.62
Installation of 10" and 12" WYE	Each	\$ 2,862.97
Root Pruning	Each	\$ 638.00
Replacement of 10" concrete bus pad	Square yard	\$ 148.27

City of New Orleans Ordinance, §2-1120(8)(b) provides that a person or entity who is the subject of a report shall have 30 days to submit a written explanation or rebuttal of the findings before the report is finalized, and that such timely submitted written explanation or rebuttal shall be attached to the finalized report.

On November 18, 2019, the OIG distributed an Internal Review Copy of this report to the entities who were the subject of the audit so they would have an opportunity to comment on the report prior to the public release of this Final Report. The DPW waived the exit conference, and the OIG received the DPW's comments on December 9, 2019. The OIG attached these comments to the report.

DEPARTMENT OF PUBLIC WORKS
CITY OF NEW ORLEANS

December 9, 2019

Office of Inspector General
Attn: Mr. Darry Harper
525 St. Charles Ave.
New Orleans, LA 70130

In response to the report dated November 18th, 2019, the Department of Public Works (DPW) would like to address the specifics in your findings. DPW agrees with your positive findings as it relates to the accounting and documenting of work complete. These improvements are correlated to the implementation of new technology, which allows DPW to have an accurate accounting of our infrastructure repairs. Currently, DPW is using the same technology to track our daily maintenance work orders in real time and simultaneously document what assets have been maintained. DPW intends to implement this technology across all DPW divisions.

The Cantrell administration agrees with your observation about insufficient funding for infrastructure repairs and maintenance. Thanks to Mayor Cantrell's victory with the Faire Share Agreement, DPW's annual maintenance budget will double beginning in 2020, enabling the following:

- Additional in-house crews / fewer services contracted out;
- Two flush trucks per council district(subsurface lines cleaned every 2-3 years); and
- Two drainage repair crews to address the broken subsurface lines and broken catch basins that were not addressed by the emergency program.

We acknowledge that this type of technology and tracking of our infrastructure maintenance is long overdue, and DPW intends to utilize the Fair Share Funding to reach a more consistent routine schedule.

Sincerely,



Keith J. LaGrange, Jr., P.E.
Director

