



# The Challenge of Meeting Detroit's Pension Promises

Analysis of progress to date, the path forward, and lessons for other public sector retirement plans



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The Pew Charitable Trusts is driven by the power of knowledge to solve today’s most challenging problems. Pew applies a rigorous, analytical approach to improve public policy, inform the public, and invigorate civic life.

## Overview

In July 2013, facing an estimated \$18 billion in debt, Detroit became the largest U.S. city ever to file for federal bankruptcy protection. No other local or county government filing had come close to this level of debt. Sixteen months later, a federal court approved a deal, known as the plan of adjustment (POA), to allow the city to emerge from bankruptcy. The POA, negotiated by the city and its creditors, required Detroit to make significant changes to address its financial obligations—of which unfunded pension and retiree health care liabilities accounted for about 40 percent—and to develop a feasible approach toward long-term fiscal soundness.

This report summarizes the key pension-related provisions of Detroit's POA and includes an examination of the city's pension funding trajectory. The agreement froze the city's two existing pension plans, created two new plans for current and future workers, temporarily reduced city pension contributions until 2024 to provide Detroit with some budget relief, and established new governance structures to oversee the two systems. Since the POA took effect, city officials have established a dedicated trust fund to help pay for the expected rise in pension costs that will follow the transition period and have recommended a long-term funding policy for the legacy pensions beyond 2023.

The analysis finds that the contribution policies proposed for the city's legacy pension liabilities are likely to be sufficient to pay promised benefits if plan investment returns meet current assumptions. Still, the city faces significant budget planning challenges caused primarily by persistent, long-term negative operating cash flow—attributable mostly to benefit payments outpacing available assets—for the two frozen legacy plans, and the potential for unexpected costs for the two new plans for current and future employees. The prospects of such challenges and the possibility of unexpected costs require close attention.

The report also includes recommendations for further steps that Detroit can take to help policymakers evaluate the long-term outlook for the city's pension financing while working to keep budgets balanced and develop a clear path toward fiscal solvency.

The analysis concludes that Detroit officials should:

- **Examine how required contributions from the city budget will be determined after 2023.** The POA does not set a funding policy beyond 2023 for the two legacy pension plans, although it delegates—to the investment committees for the two retirement systems—the authority to set and approve required city contributions at least until 2034. This setup will require close coordination between city officials and the investment committees, given the potentially significant impact of pension costs on Detroit's budgets.
- **Clarify provisions of cost-sharing features in the new pension plans.** These features, which require higher employee contributions as well as adjustments to base benefits if investments underperform, were included in the plans to reduce the risk of unplanned costs for taxpayers and to share responsibility for losses between the employer and employees. The adjustments could mitigate about half of unplanned costs when returns are lower than expected, but, because the plan language is complex and ambiguous on how these features should be implemented, the cost-sharing mechanisms could have unintended consequences—including possible spikes in employer contributions when investments do not perform as expected.
- **Monitor and plan for long-term liquidity issues.** The analysis predicts persistent negative cash flow for over 20 years for the city pension plans, primarily because the expected contributions to the legacy plans are lower than actuarially required during the transition period that runs through 2023. These liquidity concerns will need to be considered because cash flow can affect investment strategies and the ability to achieve targeted returns.

- **Measure and manage administrative costs.** Legal fees and other pension plan expenses, primarily linked to the bankruptcy proceedings, were the highest among cities of comparable size in fiscal year 2014. These expenses have declined slightly but remain high, warranting continued monitoring.

Although the scale of Detroit’s bankruptcy is unique, officials in cities and states across the country grappling with similar, if less acute, fiscal challenges can apply the lessons of the city’s experience. Detroit’s funding choices for its two legacy plans—both for the short and long terms—offer helpful insights for jurisdictions that have implemented new pension plans for recent hires while working to keep promises to longtime workers.

## Sources and methodology

The Pew Charitable Trusts’ research and analysis are based on publicly available documents, including valuations, studies commissioned by the city, audit and annual reports, and biannual financial reports published by the state-appointed Financial Review Commission. In addition, researchers used valuation information for other states and cities for purposes of comparison, and actuarial projections of pension liabilities and costs using a sophisticated simulation model and standard actuarial methods.<sup>1</sup> The financial and actuarial analysis is designed to complement and augment the work done by the actuarial firm retained by the city. Pew uses metrics for fiscal sustainability and structural budget balance to evaluate different funding policies as opposed to providing a funding policy recommendation. The projections and analyses included in this report are substantially consistent with projections produced by the pension plans’ actuaries and are based on the plans’ assumptions and financials to date. Actual results may vary over time, based on experience.

## Background

After nearly a year and a half of negotiations with bond insurers, labor unions, retirees, and other creditors and almost a month of confirmation hearings to assess the plan's feasibility, a federal bankruptcy judge for the Eastern District of Michigan approved Detroit's POA on Nov. 7, 2014. This allowed the city to exit municipal bankruptcy proceedings. Unfunded pension obligations and retiree health care costs amounted to roughly \$7.4 billion of Detroit's \$18 billion in bankruptcy debt.<sup>2</sup> To address these costs going forward, the POA cut pension and health care benefits for retirees and reduced pension benefits for current workers upon retirement. Among its specific retirement-related provisions were elimination of retiree health care benefits for workers going forward, a freezing of the city's two existing pension plans, a temporary reduction in city pension contributions to provide Detroit with some budget relief, new governance structures to oversee the frozen legacy plans, and the creation of two new pension plans for current and future workers.

Actuarial analyses done for the city's emergency manager during the bankruptcy proceedings projected that Detroit's pension debt for the legacy plans would grow to about \$1.4 billion by 2024, the end of the city's transition financing period and the first year the city would be scheduled to resume making full pension contributions. Revised analyses in 2016, however, indicate that the debt could nearly double to \$2.7 billion over the same time frame.<sup>3</sup>

In response, Detroit committed to setting aside extra funds each year above the amounts required by the POA to help meet these future pension costs and to make the ongoing budget allocation for pensions in 2024 a smaller incremental increase. In February 2017, the city proposed establishing a trust fund for these annual deposits, which are estimated to grow to about \$377 million by 2023. The state-appointed Financial Review Commission (FRC) approved the proposal in April. Starting in 2024, a portion of the Retiree Protection Trust Fund's balance will go toward required annual pension payments until the fund is depleted, a process that will reduce some strain on the city budget. Although this development represents a positive step, the trust fund's entire projected balance in 2024 amounts to only about one-third of the full payments the city would be required to make toward the frozen plans alone during this 10-year transition, allowing unfunded pension debt to continue to grow.<sup>4</sup>

The city's initial presentation to state officials in February 2017 on the now-adopted trust fund concept also recommended a long-term funding policy to pay legacy pension obligations beyond 2024. Officials in Detroit, with the support of the FRC, are trying to provide a road map to the investment committees on the funding necessary to ensure the long-term sustainability of the pension plans while giving the city and the retirement systems some cost predictability. At the same time, the POA ultimately gives the power to set these policies to the newly established investment committees for the two retirement systems.<sup>5</sup>

In the section that follows, these provisions, along with other key pension-related elements of the plan of adjustment, are highlighted.

## Frequently Used Abbreviations and Terms

**ASF**—Annuity savings fund

**COLA**—Cost-of-living adjustment, also referred to as the pension improvement factor or escalator

**DIA**—Detroit Institute of Arts

**DWSD**—Detroit Water and Sewerage Department

**FRC**—Financial Review Commission

**GRS**—General Retirement System

**GASB**—Governmental Accounting Standards Board

**OPEB**—Other post-employment benefits

**PFRS**—Police and Fire Retirement System

**POA**—The Eighth Amended Plan for the Adjustment of the Debt of the City of Detroit, or plan of adjustment

**UTGO**—Unlimited tax general obligation

**VEBA**—Voluntary employee beneficiary association

**VECA**—Voluntary employee contributions account

**Component I**—Two new pension plans created by the POA for new workers and benefit accrual going forward

**Component II**—Detroit’s legacy pension plans for the two retirement systems frozen in the POA

## Key pension elements of the plan of adjustment

Detroit officials crafted an approach in the POA to grapple with long-standing financial issues unique to the city’s circumstances, including steps to meet pension obligations. Although post-bankruptcy approaches to retirement benefits elsewhere have varied widely, every municipal bankruptcy case studied ended with one of two key outcomes: pensions were either preserved under POAs or they were severely diminished. For example, a series of municipal bankruptcies in California through the mid-2000s resulted in no changes to existing pension benefits after the California Public Employees’ Retirement System argued that state law prevented diminishing such core retirement benefits through bankruptcy. Officials in the cities of Stockton, San Bernardino, and Vallejo instead reduced salaries, benefits for future hires, and health care benefits for retirees. They also reduced their obligations to bondholders.

On the other end of the spectrum, in 2011 as part of the bankruptcy in Central Falls, Rhode Island, state funding helped offset pension cuts by 25 percent for the first five years. Ultimately, though, retirees’ benefits were reduced up to 55 percent while bondholders were paid in full, a requirement of state law. That same year, retirees in Prichard, Alabama, received just a third of originally promised benefits after a long legal battle between the city and retirees that began when Prichard defaulted on pension payments in 1999.<sup>6</sup>

In some ways, the changes that Detroit made to benefits for existing employees and retirees represent a middle path supported by an orderly process, compared with the actions taken in other cities. There is no one-size-fits-all method to meeting pension promises, but understanding Detroit's overall circumstances and approach may be useful for officials in other jurisdictions facing similar fiscal challenges. This section summarizes the key pension-related provisions of Detroit's POA.

### Summary of Changes to Retirement Benefits

- **Pension benefit cuts for retirees.** The POA included changes to retiree benefits that eliminated cost-of-living adjustments (COLAs) and cut base benefits an average of 4.5 percent for those in the General Retirement System (GRS). COLAs for those in the Police and Fire Retirement System (PFRS) were reduced by 55 percent.
- **A "hard freeze" of the existing pension plans and creation of two benefit plans.** The POA essentially ended accrual of any new benefits under the legacy plans (referred to as Component II in the new plan documents) while creating two retirement plans (Component I plans) for current and new workers.
- **Reduced health care coverage for retirees and eliminated coverage for workers going forward.** A settlement between the city and retirees resulted in these benefits being funded and administered through two new trusts established by voluntary employee beneficiary associations (VEBA) for the two legacy retirement plans. This change, along with eliminating other post-retirement employee benefits (OPEB) for workers going forward, resulted in an approximately \$4.3 billion decrease in unfunded health care obligations and future OPEB costs.
- **Addition of significant cost-sharing features in the new pension plans.** The new retirement plans (Component I plans) maintain a defined benefit structure but include robust cost-sharing features that require higher employee contributions and/or additional benefit reductions if plan assumptions are not met.
- **A near-term transition financing plan to provide budget relief.** The POA included agreements between the city and entities such as the Detroit Institute of Arts (DIA) and the Detroit Water and Sewerage Department (DWSD) that called for roughly \$887 million in contributions over 10 years from sources outside the city budget into the frozen plans. Although this approach provided some immediate financial relief, these payments represent less than half of the total actuarially required amounts needed until the city is scheduled to resume making full pension contributions in 2024.
- **New investment committees established for additional oversight.** State law established powerful investment committees to provide fiscal oversight over the newly created pension plans and the frozen legacy plans. In addition to decisions on investment policies, the committees have the authority to approve the required level of annual pension contributions from the city budget, a power that directly affects Detroit's overall budget.

## Benefit reductions for retirees and active employees

Detroit's path out of bankruptcy included some benefit reductions for active and retired workers and a "hard freeze" of both city pension plans—the General Retirement System (GRS) and the Police and Fire Retirement System (PFRS). These are referred to in the POA as Component II.<sup>7</sup> With a hard freeze, assets remain in the plan and are paid out when participants retire or leave, but plan members accrue no new benefits.<sup>8</sup> All city workers, incumbent and future, are now accumulating benefits in newly created defined benefit pension plans.

Further, the POA eliminated future cost-of-living adjustments (COLAs) for retirees in the GRS and reduced them by 55 percent for those in the PFRS. For GRS only, retiree pension benefits were reduced by 4.5 percent; some retirees also were required to pay back a portion of funds already allocated to supplemental savings accounts.<sup>9</sup>

These pension benefit reductions, along with the impact of changes in assumptions on investment performance, cut the city's pension liability by about 16 percent, or about \$1.3 billion total for both plans, according to independent audit reports.<sup>10</sup> Officials also eliminated the city's responsibility to directly provide health care for retirees, which cost \$148 million in 2014, while agreeing to set aside \$450 million plus interest over 30 years in a trust to pay a portion of these costs in the future.<sup>11</sup> Together, these actions resulted in a \$4.3 billion net reduction in the city's obligation for what are known as other post-employment benefits (OPEB).<sup>12</sup>

## New retirement plans going forward

After the hard freeze of the two legacy pension plans, all new accruals for existing and new workers will be determined under the two new plans, which have lower benefit levels and significant cost-sharing features. A guaranteed minimum return on supplemental savings accounts also was eliminated.<sup>13</sup>

Cost-sharing policies are typically tied to a plan's rate of investment return or its funding level and result in adjustments to either employer and employee contribution rates or post-retirement benefits. The cost-sharing features in Detroit's new plans, detailed in Table 1, take effect if the funded ratio for the GRS dips below 100 percent. First, these features eliminate COLAs and increase employee contributions by 1 percentage point of compensation. If the funded ratio falls below 80 percent, employee contributions increase by an additional 1 percentage point, while the multiplier used to calculate members' final pension benefits decreases. Similarly, if the funded ratio for PFRS falls below 90 percent, employee contributions increase and COLAs are eliminated. The cost-sharing mechanisms remain in place until the funded ratios are projected to again achieve 100 percent within five years.

Table 1

## Adjustments to Worker Contributions and Benefits With Plan Cost-Sharing Features

New plans include steps to alter benefits when needed to achieve overall targets

Benefits affected	General Retirement System (GRS)		Police and Fire Retirement System (PFRS)
	Funded ratio falls below 100%	Funded ratio falls below 80%*	Funding ratio falls below 90%*
<b>Escalator (COLA)</b>	Eliminated	Eliminated	Eliminated
<b>Employee contributions</b>	Increases from 4% to 5% of base pay	Increases from 5% to 6% of base pay	Increases in 1-percentage-point increments over a five-year period, up to as much as an additional 4% increase to the 6% or 8% base pay contribution <sup>†</sup>
<b>Benefit multiplier</b>	Remains at 1.5%	Reduced to 1% from 1.5%	n/a
<b>Preceding escalator (COLA)</b>	n/a	Escalator (COLA) awarded for previous year removed, up to two years prior to date of funding level decline	Escalator awarded for previous year removed, up to two years prior to date of funding level decline

Notes: Funding level is projected over a five-year look-back period. Discount rate for both plans is fixed at 6.75% through FY 2023, with market value of assets determined on the basis of a three-year look-back period.

\*Once the funded ratio falls below 100 percent for the GRS and 90 percent for PFRS, Section 9.5 of each plan document requires these cost-sharing measures to be implemented until the funded ratio is projected to return to 100 percent funding over the five-year annual projection.

<sup>†</sup>PFRS workers hired before July 1, 2014, are required to contribute 6 percent of their base pay, while worker hired after that date contribute 8 percent of their base pay (PFRS combined plan document, Sec 9.3[3]).

Source: Pew analysis of Section 9.5, GRS and PFRS combined plan documents

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Pew’s analysis of these cost-sharing features and the new benefit plans indicates that they mitigate a substantial portion of additional cost to the city and taxpayers if investment returns are lower than expected. However, the adjustment rules are unusually complex and warrant greater clarity, both to ensure that the intent of the POA is followed and to protect against potential unintended and unforeseen spikes in city contributions if investments underperform. The implications and potential outcomes of these new cost-sharing features are explored later in this report.

## Transition financing plan for near-term budget relief

As part of the POA negotiations, Detroit reached agreements with the state, charitable foundations, and other entities to provide contributions to fund the legacy pension plans, the bulk of which will occur over the next 10 years.<sup>14</sup> Known as the “grand bargain,” this transition financing plan was intended to give the city some budget relief with the help of the state of Michigan, the Detroit Water and Sewerage Department (DWSD), the Detroit Institute of Arts (DIA), individuals, businesses, and charitable foundations.<sup>15</sup> (Appendix A.5 shows all sources of contributions to the city’s legacy plans between 2015 and 2024, the year the POA sets for the city to resume full pension payments toward the legacy plans.) Although an important source of funding and essential for the city to strengthen core government services in the near term, the transition payments represent less than half of the aggregate annual payments that would be required during this period, a fact that will allow pension debt to grow.<sup>16</sup> At the time these agreements were crafted, Detroit’s 2024 payment toward the legacy plans was estimated to be \$111 million—about 10 percent of the city’s entire projected budget for that year.<sup>17</sup>

## Governance and decision rights for funding legacy pension obligations

New plan documents for both pension systems expand the composition of the boards of trustees, establish asset and investment management committees to be in place at least until 2034, and outline the process for determining city contributions to the legacy pension plans beginning in fiscal 2024. The boards and the investment committees for each system are expected to work collaboratively to establish actuarial assumptions, appoint actuaries, make decisions on plan investments, and determine the rate of employee and employer contributions to the systems after 2024, a power that directly affects the city’s budget.<sup>18</sup>

Nevertheless, at least until July 1, 2034, the pension systems’ boards cannot act on their investment management decisions without support from their respective investment committees.<sup>19</sup> This level of authority is fairly common for pension plan boards, but the decision powers granted to the investment committees on actuarial assumptions and required contributions from the city into the pension plans are unusual. In effect, the investment committees for Detroit’s pension plans pay a critical role in providing oversight for all financial decisions related to the GRS and the PFRS.

## Recent steps to cope with pension promises and increased debt

### Growth in pension debt since 2014

Actuaries hired by the emergency manager during the POA negotiations based initial projections for pension debt and required payments for the legacy plans in 2024 on information available at the time. They calculated the numbers using an aggressive and rarely used funding approach called level principal, which starts contributions at a higher level and reduces them over time.<sup>20</sup> Under this approach, principal payments remain constant as interest rates decline, which should result in lower overall city contributions. But after mortality assumptions were updated in early 2015—shortly after the POA was adopted—the estimate for required pension contributions in fiscal 2024 increased to more than \$200 million from general funds alone.<sup>21</sup>

In contrast, using a different calculation known as level-dollar funding included in the Retiree Protection Trust Fund proposal—detailed below—payments would be approximately \$187 million, or \$76 million more than the original \$111 million estimate for 2024, but still \$137 million less than the most recent actuarial projections of \$248 million using the POA's level principal approach.<sup>22</sup> Under level-dollar funding, contributions are set as equal payments over a specified number of years at a level sufficient to pay down the unfunded liability, similar to a typical mortgage.

Additionally, these revised estimates provided by the actuaries resulted in a projected increase of nearly \$1.3 billion in pension debt, or double the original projection, in fiscal 2024.<sup>23</sup>

### Planning for increased pension costs in 2024

In fiscal 2016, the city committed to setting aside \$30 million from its budget to start addressing the growth in projected legacy pension costs. With the adoption of the Retiree Protection Trust Fund in fiscal 2017, Detroit continued to take steps to deal with the looming 2024 jump in required city pension contributions. Policymakers agreed to dedicate fixed amounts annually in the remaining years of the transition finance period to be placed in a tax-deferred, interest-collecting trust estimated to total \$377 million by fiscal 2023.<sup>24</sup> The city's general fund dollars put into the trust fund will be above the initial POA required amounts. In addition to the \$30 million set aside in 2016 and \$60 million in 2017, the annual amount will increase gradually to allow the trust to grow quickly until 2023.

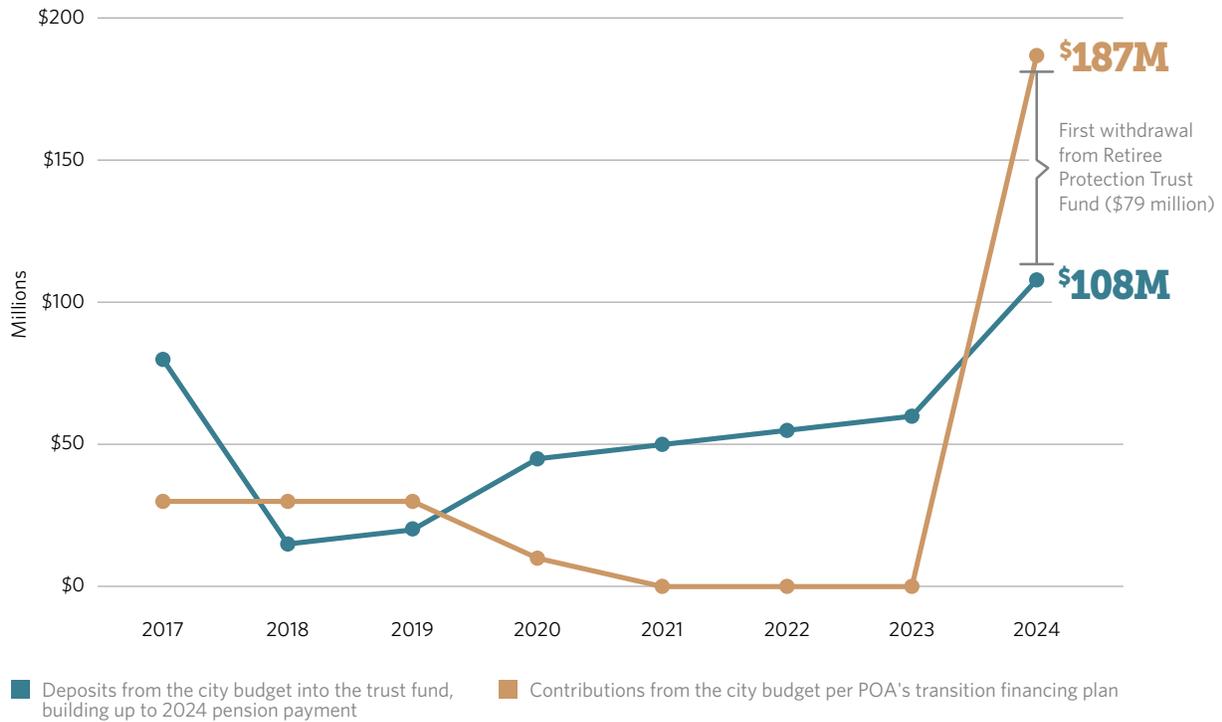
### A glide path to making full pension contributions

Starting in 2024, a portion of the trust fund will be used to reduce the anticipated spike in contributions needed from the general fund as the city resumes full payments into the legacy plans. Without this step, city obligations would jump from minimal contributions, plus \$70 million from other sources, in 2023 to \$187 million directly from the city budget the next year. Figure 1 shows how the new approach allows for a smoother buildup to fund increased pension payments starting in 2024. The plan calls for the city to contribute \$108 million from the general fund that year while the remaining \$79 million needed for the estimated payment would come from the trust. The cost to the general fund is estimated to be about \$5 million annually in succeeding years, based on the city's projections and to build on the contributions from other sources outlined in the POA until 2033. Appendix A.8 details the trust fund deposit and drawdown schedule.

Figure 1

## Detroit's New Strategy for Resuming Full Pension Payments in 2024

More gradual increases from the general fund than initial transition financing plan



Note: Contributions and deposits represent the general fund share only, which is net of payments from other sources.

Source: Plan of adjustment; revised estimates in the actuarial analysis produced for the city in October 2015; "Funding Strategy for Legacy Pension Obligations," presented to the FRC in February 2017; FRC November 2015 and August 2017 biannual reports

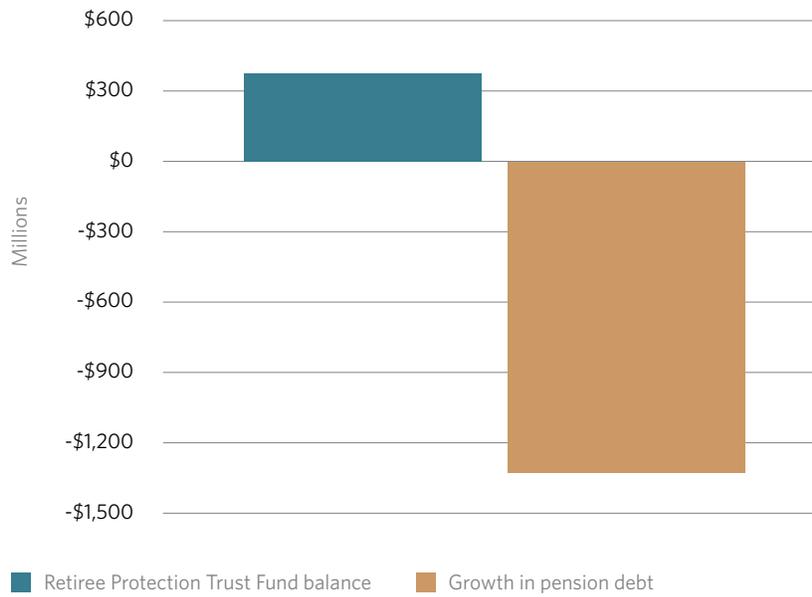
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Although the new plan is a proactive and positive approach to addressing future costs, Figure 2 shows that establishment of the trust fund addresses only part of the growth in pension-related costs expected by 2024, covering about one-third of the projected additional costs identified after adoption of the POA, and also allows for pension debt to continue to grow in the interim.

Figure 2

## Growth in Projected 2024 Pension Debt Outpaces Trust Fund Balances

Revised analyses show \$1.3 billion increase in pension debt



Source: Pew and Terry Group analysis of combined plan documents; 2015 and 2016 actuarial valuations for the Component II plans; revised estimates in the actuarial analysis produced for the city in October 2015; "Funding Strategy for Legacy Pension Obligations," presented to the Financial Review Commission in February 2017; FRC November 2015 and August 2017 biannual reports

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## Analysis of proposed funding policy for legacy plans

### Level-dollar funding policy suggested for legacy pension costs

The funding strategy for the legacy pension obligations outlined in the city's trust fund plan uses a level-dollar actuarial method for contributions starting in 2024. City contributions are set as equal payments over a specified number of years at a level sufficient to pay down the unfunded liability. Assuming that the retirement systems' investment targets are met, the pension plans' actuaries estimate the annual amount to be \$187 million for the combined 2024 legacy pension contributions.<sup>25</sup>

Technically, the city is presenting a more conservative approach than what is called for in the new plan documents, an actuarial method called level percent of payroll, which allows for lower contributions in the near term that increase over time. The GRS plan documents specify that contributions toward legacy pension costs be calculated using "a level percentage of [active employee] compensation" starting in 2024.<sup>26</sup> Similarly, the PFRS combined plan document says that legacy pension debt payments must be calculated "based on future salaries," indicating that pension payments for the frozen pension plan would grow at the same rate as city payroll.<sup>27</sup>

### Stress test analysis: What if investment returns are low?

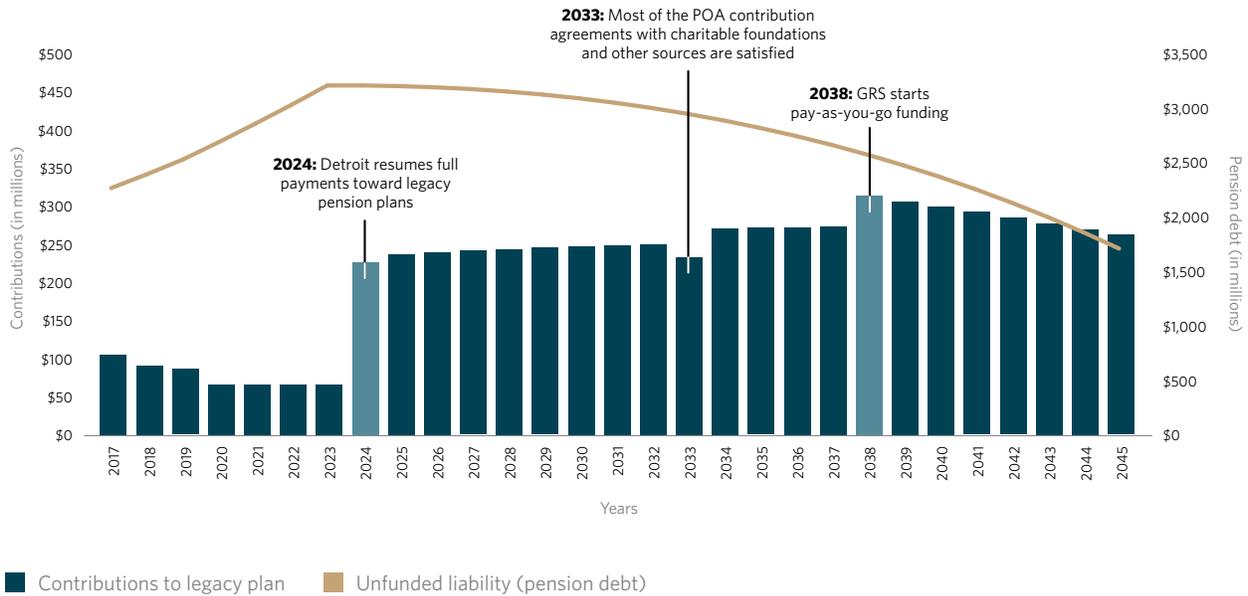
To assess how the proposed funding strategy operates under different economic conditions, Pew incorporated the long-term level-dollar funding approach in its financial simulation models for the two legacy plans. The results match those reached by the pension plans' actuaries exactly if plan assumptions hold: Both models land on a 2024 required contribution of about \$187 million for the city.

Pew then estimated how a low-return scenario of 5.25 percent would affect projected contributions over time using the same simulation models. At that rate of return, we project that contributions required from the city general funds could jump to about \$226 million total for both plans for fiscal 2024, requiring the city to account for an additional \$39 million from its budget, compared with the projected amount based on targeted returns. Additionally, even if investment returns are lower than expected, the PFRS' assets would decline but maintain a positive fund balance until at least 2044. However, in this scenario, the GRS legacy plan would run out of assets in 2038; after that, the plan would operate on a pay-as-you-go basis. At that point, benefit payments would be substantially lower than they are today, although the plan would still experience a \$40 million increase in contributions over one year—total payments would rise from \$273 million to \$313 million—to directly pay promised benefits. Note that with the hard freeze, liabilities would drop as benefits are paid out over this period. As a result, even with the depletion of plan assets, the analysis projects that unfunded liabilities would decline over time.<sup>28</sup>

Figure 3

## Detroit's Long-Term Projection of Legacy Pension Debt Under a Low Investment Return Scenario

Declining assets in the GRS plan could require pay-as-you-go funding



Note: Analysis assumes 5.25 percent returns starting in 2017 and a 30-year, level-dollar amortization schedule for the legacy costs starting in 2024. Contributions are net of contributions from other sources.

Source: Pew and Terry Group analysis of combined plan documents; 2015 and 2016 actuarial valuations for the legacy plans; revised estimates in the actuarial analysis produced for the city in October 2015; "Funding Strategy for Legacy Pension Obligations," presented to the Financial Review Commission in February 2017; FRC November 2015 and August 2017 biannual reports on Detroit

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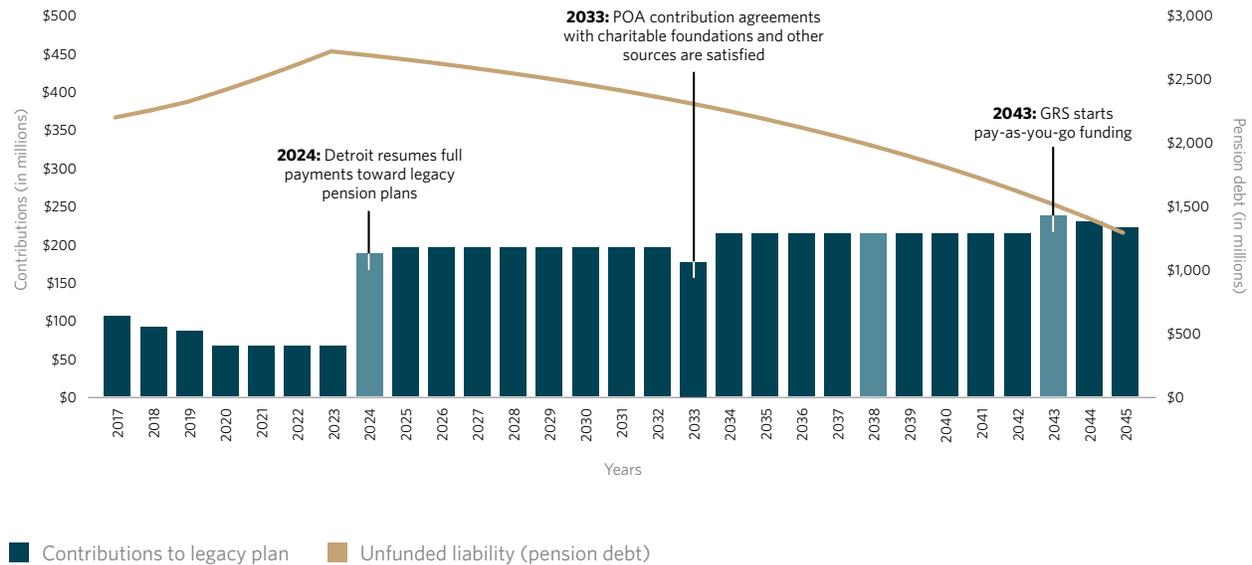
### Proposal is fiscally sustainable under different economic conditions

Overall, the level-dollar approach proposed by the city performs reasonably well if investment returns are as expected and even when they are lower than expected. However, actuarial and investment return assumptions are inherently uncertain and warrant a thorough analysis that assesses a range of economic scenarios. As shown in Figure 4, the level-dollar funding approach would immediately start reducing the city's unfunded obligations for promised pension benefits, or the unfunded liability, if all plan assumptions and target returns are met. This would be a decided advantage for the city over time.

Figure 4

## Detroit's Projected Long-term Legacy Pension Debt If All Assumptions Are Met

Once full pension payments resume, debt is expected to start declining



Note: Analysis assumes 6.75 percent returns starting in 2017 and a 30-year, level-dollar amortization schedule for the legacy costs starting in 2024. Contributions are net of contributions from other sources.

Source: Pew and Terry Group analysis of combined plan documents; 2015 and 2016 actuarial valuations for the legacy plans; revised estimates in the actuarial analysis produced for the city in October 2015; "Funding Strategy for Legacy Pension Obligations," presented to the Financial Review Commission in February 2017; FRC November 2015 and August 2017 biannual reports on Detroit

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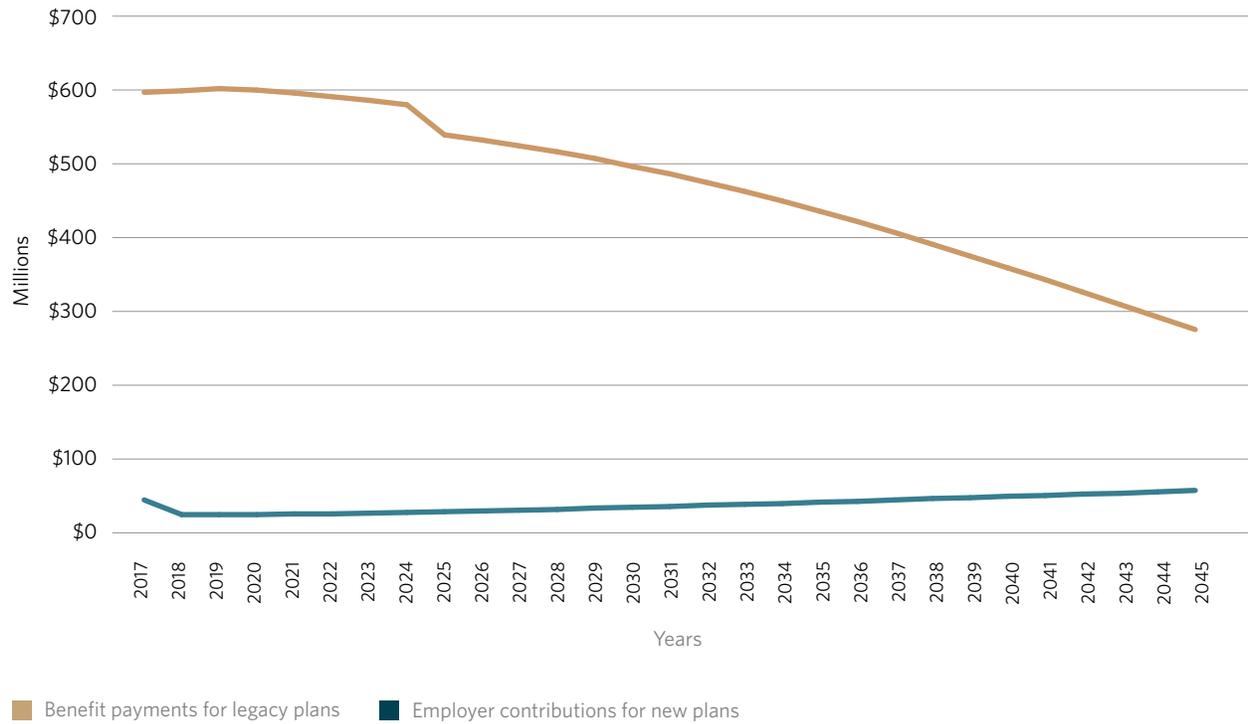
### Continued focus on legacy plans is critical

Even with the creation of two new pension plans for all active city workers, legacy costs will remain the largest pension expense for Detroit for decades. As shown in Figure 5, Pew's analysis estimates annual benefit payments from the closed plans to be within the \$500 million to \$600 million range for about a decade and decrease to \$400 million or less per year for the following 20 years. In contrast, annual contributions to pay for new benefits earned by city workers are expected to remain below \$60 million through 2045 under current assumptions.<sup>29</sup> But Detroit will need to closely track its available funds. Because of the large annual benefit payments for the legacy plans, the assets are expected to decline quickly. That means the city pension plans will have to ensure that a relatively higher level of cash—or liquidity—is available to pay promised benefits. Later in this analysis, we examine this issue and provide recommendations for monitoring and measuring legacy plan liquidity.

Figure 5

## Cost Comparison: Legacy Benefit Costs vs. Funding New Benefits if Assumptions Met

Legacy benefits payments decline over time but remain high, while new plan costs remain stable



Source: Pew analysis using financial simulation models created for Pew by The Terry Group based on publicly available information from the POA, combined plan documents, actuarial valuations, and GASB statements for the new and legacy GRS and PFRS plans

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## Analysis of cost-sharing features in new benefit plans

### Increased funding obligations and benefit reductions to share costs

The new retirement plans established under the POA in 2014 modified benefits, but the basic structure of Detroit's pension benefits did not change. As in the structure for the legacy plans, new pension benefits include a mandatory defined benefit plan (DB) as well as a voluntary defined contribution (DC) plan.<sup>30</sup> The new DB plans are referred to as hybrid plans because they include significant cost-sharing features that increase employee contributions and reduce COLAs if investments underperform.<sup>31</sup>

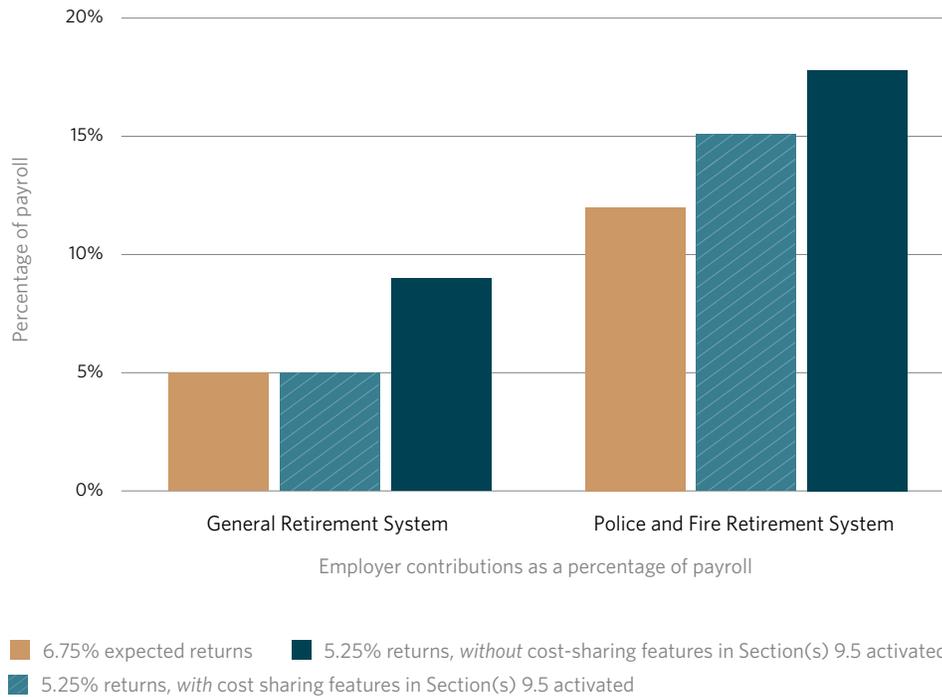
Pew examined the city's costs for new benefits under different economic conditions (based on the cost-sharing provisions of Section 9.5 of each plan document). Those provisions were put in place to provide the city and taxpayers with more cost predictability and to "safeguard the long-term actuarial and financial integrity of the Retirement Systems."<sup>32</sup>

The analysis showed that the cost-sharing mechanisms would mitigate about half of the additional costs for Detroit's new public safety plan if investments underperform. Similar steps in the general retirement plan seemingly mitigate almost all of the additional costs if investments are lower than expected, as illustrated in Figure 6 below.<sup>33</sup>

Figure 6

## Pension Contributions as Percentage of Payroll for New Plans Under Different Investment Scenarios

If returns fall below expectations, the cost-sharing features would reduce financial risk to city



Source: Pew and Terry Group analysis of combined plan documents; 2015 and 2016 actuarial valuations for the new GRS and PFRS plans

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**Methodology Note:** The analysis above uses a sophisticated financial simulation model of the Component I plans and a rigorous statistical analysis of 10,000 investment return scenarios, examining the present value of employer contributions from 2024 through 2047, including any final unfunded liabilities, and dividing it by payroll over that same time frame to get an effective contribution rate. To replicate the uncertainty in financial markets, we used a **stochastic analysis**, in which returns vary randomly from year to year and average out to 6.75 percent in the long term. Analysis of the scenarios without Section 9.5 cost-sharing features assumes a 30-year amortization schedule, as required by Michigan law. Final unfunded liabilities are included in employer contributions where actuarial funding is present.

If returns are lower than expected, the GRS cost-sharing features shift the risk completely to employees through higher employee contributions, reduced COLAs, and ultimately a reduction in core benefits. This assumes that the cost-sharing features described in Section 9.5 are the only mechanisms for responding to investment shortfalls or additional costs associated with changes in actuarial assumptions, as no explicit contribution policy is stated in the GRS plan document. The PFRS results indicate that under a 5.25 percent return scenario, the cost-sharing provisions would reduce about half of the additional costs that would otherwise be paid by the city. If long-term returns come in at only 3.7 percent, however, less than one-third of the employer risk would be mitigated, meaning higher costs for the city.

## Ambiguities in current cost-sharing policies

Pew found significant ambiguities in the plan documents that describe how cost-sharing provisions should be implemented for both the GRS and PFRS plans, which could lead to unplanned costs for the city and taxpayers. The description of the PFRS cost-sharing steps, illustrated in Figure 7, provide an example. The first eight steps either increase employee contributions or reduce retiree COLAs to get to full funding. But once these features are exhausted, the ninth step sets **employer contributions** so that the plan reaches 100 percent funding within five years. This last step essentially sets a funding policy with a five-year payment schedule for the city to meet all unexpected costs. But ambiguities in the specific plan language describing the entire process make it hard to predict exactly how these steps will play out.

Figure 7

## Summary of Adjustments to Employee Contributions and Benefits Under New Police and Fire Retirement System Pension Plan

New plan includes complex cost-sharing features



Note: Funding levels for both plans are projected during the annual valuation over a five-year period with a two-year delay between initial valuation projection and resulting remedial actions being taken. Each percentage increase to employee contributions lasts for up to five years. Once cost-sharing measures are activated, the funded ratios of both the General Retirement System (GRS) and Police and Fire Retirement System (PFRS) plans must be projected to be at least 100 percent over the five-year period for cost-sharing measures to switch off and benefit levels to be restored to default rates. At least until 2034, the GRS and PFRS investment committees are responsible for activating these features as necessary and outlined in Section 15.2(k) of the GRS and Section 16.2(k) of the PFRS combined plan documents. See Appendix A.13 for a summary of cost-sharing features in the new pension plan for Detroit's GRS.

Source: Pew analysis of "Combined Plan for the Police and Fire Retirement System of the City of Detroit, Michigan: Amendment and Restatement Effective July 1, 2014," specifically Section 9.5, Fiscal Responsibility: Benefit Reductions and Increased Funding Obligations

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The path for these decisions appears to be designed to require swift action to keep the pension system well-funded, but in periods following poor investment performance, the city payments needed over a relatively short period could have a substantial impact on the city budget. Additionally, the specific provisions of both plans' cost-sharing features are ambiguous about when cost-sharing provisions end once they are activated. The plan document states that cost-sharing provisions should continue "until the funding level is projected to be not less than one hundred percent (100%) on a market value basis within the next five years."<sup>34</sup> Triggering these mechanisms on and off over such a short time frame could add to cost volatility for both employer and employees in the new GRS and PFRS plans. Finally, and in contrast to the PFRS cost-sharing steps, the GRS features lack an explicit actuarial contribution policy or mechanism to respond to low investment returns or other shortfalls except for adjustments to employee contributions and retiree COLAs. Such an approach could threaten the plan's funded status over time if unfunded costs are not addressed.

## Unintended consequences and costs of vague policies

A stress test analysis can illustrate the possibility that the five-year payback period required in Section 9.5 for the PFRS plan could result in unaffordable cost spikes. Figure 8 presents two specific runs of a financial simulation model for the new PFRS plan that mimic actual market scenarios over a 30-year period with investment returns varying from year to year. The solid line shows investment returns that average 6.75 percent over the long term, though individual years have higher or lower returns because of market fluctuations. The dashed line depicts a scenario with returns that average 5.25 percent over 30 years, though the numbers fluctuate in individual years.

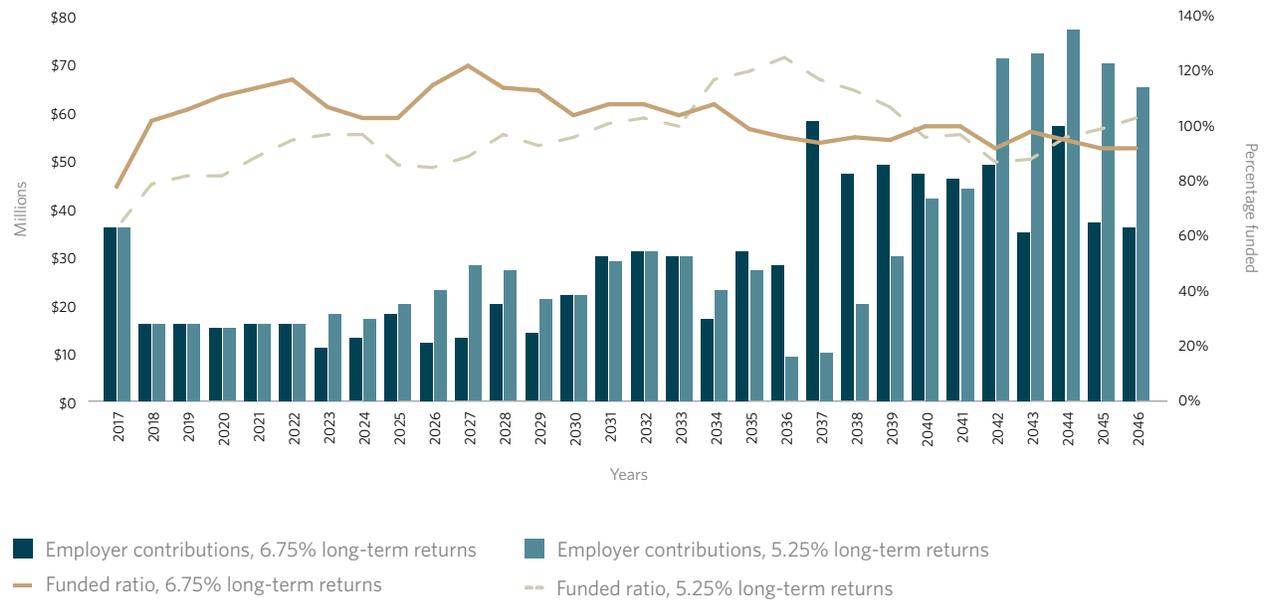
Each scenario includes both the plan's funded status and the employer contribution for each year. In most years, employer contributions remain stable in both the 6.75 percent and 5.25 percent investment return scenarios. However, even when plan assumptions are met, the city could face dramatic spikes in costs that must then be paid down over a short time frame because of the volatility created by turning the cost-sharing steps on and off over the short five-year period. In years when funding drops below a certain percentage, employer contributions can spike because unfunded liabilities that are not countered by cost sharing with employees are amortized over five years. When returns are lower than expected, two-year contribution increases for the city can be as much as \$28 million, or about 4 percent of the city's entire projected budget for the 2018 fiscal year.

The lack of specificity on how these features are to be applied undermines the benefits of cost-sharing provisions. Plan administrators typically adopt such features to achieve more stable and manageable employer costs. This may be a more difficult goal for the new PFRS plan to realize because, under varying conditions, current cost-sharing provisions could allow for the doubling of employer contributions in a year.

Figure 8

## Projected City Contributions and Funded Ratios for Detroit's New Retirement Plan for Public Safety Workers

Low investment returns can trigger spikes in employer contributions



Note: The results illustrate total city contributions and funded ratio for the Police and Fire Retirement System Component I Plan where long-term expected returns average to 6.75 percent, compared with long-term returns that average a lower-than-expected 5.25 percent return over a 30-year period.

Source: Pew and Terry Group analysis of combined plan documents for Detroit's PFRS

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Defining the goals about how these features should be applied would help resolve questions about what triggers the cost-sharing measures and what turns them off. In addition, decision-makers and employees would benefit from clear and definitive guidance for application of the cost-sharing features because that should lead to greater cost predictability. Because the investment committees are charged with interpreting POA guidelines and plan document rules and for implementing cost-sharing features, they can provide direction to city officials on how the cost-sharing steps will be applied. City officials should work with the pension plan boards and committees to clarify the intent and application of the GRS and PFRS cost sharing between workers and the city. Pew suggests options for policymakers as they consider steps to address these issues.

### Examples of cost sharing in other public sector plans

Detroit officials could benefit from considering how other public sector defined benefit systems distribute risk. An earlier Pew report, "Cost-Sharing Features of State Defined Benefit Pension Plans," provides descriptions of other approaches.<sup>35</sup> The examples are based on analyses of more than 100 of the largest public defined benefit plans. Pew identified 29 plans in 17 states that use formal mechanisms to distribute unexpected risk between the employer and employees. Tennessee's hybrid pension plan and the shared risk pension plans offered in New

Brunswick, Canada, have cost-sharing features most similar to those in the Detroit Component I plans. Overall, most include cost-sharing mechanisms that were more limited than those in Detroit's new plans.

The cost control measures in Tennessee's plan include a sequence of steps and testing to determine whether funding requirements are met at multiple points. At the start, the employer contribution to the DC portion of the hybrid plan is set at 5 percent of pay and the DB contribution is actuarially determined but can be no more than 4 percent of total payroll. By statute, the total employer share cannot exceed 9 percent of total payroll.

Actuaries determine the employer contribution to the DB portion annually. When payments amount to more than 4 percent of payroll, cost-sharing mechanisms help to cover these unforeseen expenses. Decision-makers have a number of options, including transfers of funds from a reserve account, adjustments to COLAs, transfers of employer contributions from the DC portion to members' DB accounts, increased employee contributions to the DB side, and finally, reductions in the base benefit until funding requirements are met.<sup>36</sup>

Unlike Detroit's GRS plan, Tennessee follows a standard actuarial contribution policy. The GRS plan does not spell out what happens after cost control measures have been exhausted. However, cost control measures in the GRS and the Tennessee plans that include reductions in the benefit formula for future accruals are the only examples we have seen of such an approach.

Detroit's PFRS plan does follow an actuarial funding method after all other measures have been applied but sets a shorter, five-year time period to reach full funding, while Tennessee follows a more standard 20-year approach. This puts Detroit on the hook for more potential unexpected costs to be met in a tighter frame.<sup>37</sup>

The plans in New Brunswick also include cost-sharing steps similar to the ones found in Detroit's new plans and allow contribution and benefit adjustments when the plan funded ratios fall below a certain threshold. However, the New Brunswick plans have clearer guidelines on how and when risk-sharing mechanisms are activated. These plans also use longer time frames for projecting the funded status than the short five-year period required for Detroit's plans.<sup>38</sup> Under New Brunswick's shared-risk plan framework, retirement benefits are split into categories of base pension benefits and ancillary benefits, which include other post-employment benefits, such as retiree health care and COLAs. Cost-sharing features are activated if the plan's funded level falls below 100 percent for two consecutive years. Among the options to be implemented sequentially are increases to employer and employee contributions, reductions in future ancillary benefits, and, finally, reductions in future base retirement benefits. Once triggered, these reductions stay in place until a target ratio of 105 percent is reached. When the funding ratios are above 105 percent, the plans can use the funds to reverse some of the benefits cuts. New Brunswick's plan ensures more cost predictability for both employers and employees because it clearly defines the ranges for how much the contributions for each can increase in response to low funded levels.

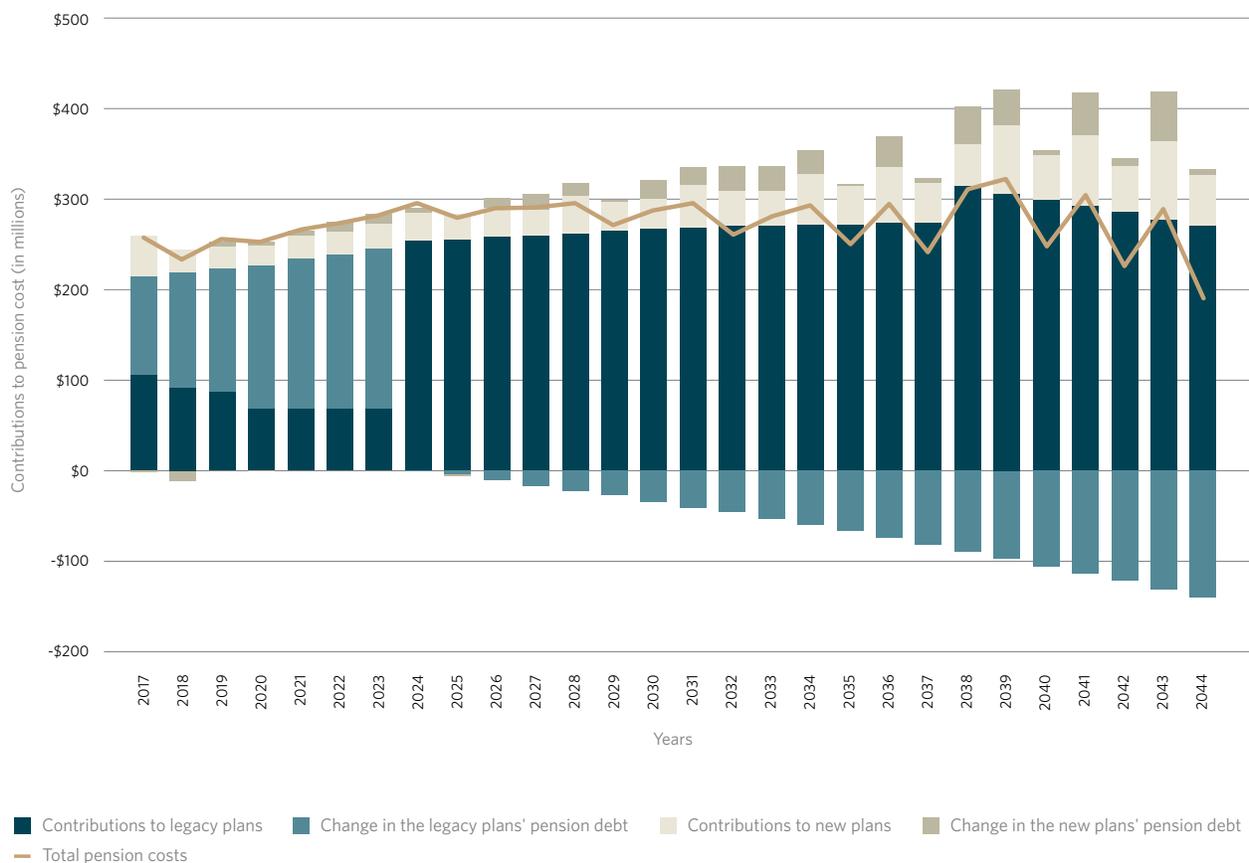
More clearly defined measures, such as those used in the Tennessee and New Brunswick plans, could help Detroit reduce potential spikes in amortization payments linked to cost-sharing features, provide more cost predictability and stability to the city and employees in these plans, and address the ambiguity of what happens if cost-sharing features are exhausted and the plans remain underfunded.

# Ongoing evaluation of fiscal sustainability

## Total pension costs analysis

The unusual circumstances in Detroit and the FRC’s duty to review and approve a structurally balanced budget require the use of fiscal metrics tailored for this purpose. Pew developed a new metric, total pension cost, to measure the overall impact on Detroit’s balance sheet. The calculations factor in both annual employer contributions and annual change in pension debt. If total pension costs are growing faster than revenue, plan expenses are outpacing the resources to pay for those expenses.

Figure 9  
**Detroit’s Total Pension Costs in a 5.25% Investment Return Scenario**  
 When returns are low, new plans see some extra costs, but totals decline



Note: Analysis assumes a level dollar funding method is applied to the legacy plans starting in 2024 and lower than expected (5.25%) investment returns starting in 2017. The total pension costs depicted in the brown line fluctuate in the out years, primarily because of the unusual design of the cost-sharing provisions of the new PFRS plan. Efforts to clarify and address uncertainties in how these mechanisms will work should help smooth out overall pension costs over time and create better cost predictability.

Source: Pew analysis using financial simulation models created for Pew by The Terry Group based on publicly available information from the POA, combined plan documents, actuarial valuations, and GASB statements for the new and legacy GRS and PFRS plans

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Stress test analysis indicates that, even if returns are 5.25 percent, the total pension cost for the Detroit plans will remain relatively stable and then start to shrink. As shown in Figure 9, the total cost for the Component I plans increases as future hires join the new plans, but the total cost of the legacy plans declines as existing pension debt is paid off. Because legacy pension liabilities are such a large portion of Detroit's pension costs, progress in paying off those benefits will lead to declining overall costs, even if returns fall short of the expected 6.75 percent. The total pension costs depicted in the brown line in Figure 9 fluctuate in the out years, primarily because of the unusual design of the cost-sharing provisions of the new PFRS plan. Efforts to clarify and address uncertainties in how these mechanisms will work should help smooth out overall pension costs over time and create better cost predictability.

## Recommendations and issues for further consideration

Detroit's recent steps to plan for future pension costs are proactive and commendable, but other issues identified in Pew's analysis could impede the path to enduring fiscal soundness.

City officials should:

- Closely coordinate decision-making with the investment committees of the two retirement systems. This is essential because the POA gave the committees the authority to determine funding policies and plan assumptions after 2024, decisions that will have a significant impact on Detroit's overall budget.
- Address ambiguities in the cost-sharing measures in the new pension plans. City officials should work with the pension plan boards and committees to clarify the intent and application of features in the GRS and PFRS plans to share costs between workers and the city to prevent unexpected costs and unintended consequences.
- Monitor cash flow so policymakers can plan for long-term liquidity constraints, which could affect the city's investment strategy and its ability to achieve targeted returns.
- Continue to measure and manage administrative expenses.

## Vital need for collaboration

Broadly defined, Detroit's pension governance structure includes the boards of GRS and PFRS, their investment committees, the city government, and the FRC. Still, Michigan state law, the POA, and plan documents grant the newly created investment committees authority beyond what is typically seen in public sector retirement systems.<sup>39</sup> In effect, the committees make decisions to approve all actuarial assumptions, determine pension contribution required from the city after 2024, and select the funding policy for the legacy pension plans. Even as city officials plan for long-term sustainability, decisions ultimately made by the investment committees can directly and substantially affect the budget. As such, cooperation and coordination with city officials and the investment committees is essential for Detroit's fiscal path forward.

Although the plan documents and POA stipulate some plan assumptions, such as the rate of return and contributions until 2023, they do not address what happens if assumptions are changed in 2024 or beyond. What happens if investment returns are consistently below earnings assumptions and the assumed level of returns is then lowered in 2024? Or, how would worker benefits and city contributions be affected if the funded ratio drops below the trigger thresholds for the new plans? The POA is silent on how the city's funding requirements and worker benefits would be affected if a significant change to the assumed rate of return was made or other core actuarial assumptions were updated. Pew's analysis assumes that the benefit plan design features would remain unchanged; the level of discretion that city officials have to modify pensions going forward is not explicitly clear.

At the same time, the investment committees' powers to make such assumption changes are clear—at least until 2034.

The GRS and PFRS boards and investment committees working with city officials do have the authority to address ambiguities in the POA, including funding policy for the legacy plans after 2024 and the cost-sharing mechanisms of the new benefit plans. All parties benefit from close cooperation and steps to examine their roles and clarify decision rights going forward.

## Targeted approaches to clarifying new cost-sharing features

The POA stipulates many of the plan assumptions and sets contribution policies for Detroit's retirement plans until 2024. Beyond that year, the plan boards and investment committees presumably will have the authority to alter assumptions and plan features, including the complex cost-sharing mechanisms. They could choose to adjust the new plans to reflect simpler approaches that achieve similar results, such as those used in New Brunswick, Canada, and in Tennessee's hybrid plan. In the interim, policymakers can take steps to reduce the likelihood of unintended consequences, particularly in Detroit's new PFRS plan.

One option would be to keep the cost-sharing provisions active longer once they are triggered. Section 9.5 of the plan states that cost-sharing provisions should continue "until the funding level is projected to be not less than one hundred percent (100%) on a market value basis within the next five years." But it is not explicitly clear when these features should be triggered off, or how the five-year period should be defined.<sup>42</sup> If the cost-sharing provisions stay active until the funding level actually reaches 100 percent on a market value basis, it is more likely that the plan will return to full funding without requiring increased employer contributions.

Detroit officials also could continue to make payments into the PFRS beyond the minimum requirement to reduce the likelihood of a sudden ramp-up of employer contributions before 2024. That would help avoid a situation in which one or two years of poor investment performance triggers all nine cost-sharing provisions. These tactics would not completely address the need for clearer provisions and plan language that reflects efforts to shield the city and taxpayers from unexpected costs, but they bring a reduced risk of employer contribution spikes.

Alternatively, officials could directly address areas of ambiguity by substantially modifying the cost-sharing features after 2024 to reflect a simpler approach or keep the same general structure in place and adopt definitive guidelines on how the features are to be applied.

If Detroit policymakers want to maintain the general structure after 2024, they could add clarifying language or remove specific cost-sharing steps to address the potential for instability. For example, they could:

- **Keep the cost-sharing measures but extend the amortization period.** The requirement that the plan return to full funding in five years contributes to instability in employer contributions. Extending the time frame for these contributions to achieve full funding to 10 years from five for the PFRS plan would lead to greater stability in employer costs. Policymakers could create an explicit actuarial backstop for the GRS plan. Figure 12 shows how employer contributions for PFRS appear to be substantially stabilized with fewer spikes using a 10-year amortization period.

Figure 10

## Projected City Contributions and Funded Ratios for Detroit's New PFRS Plan

Increasing the time frame from 5 to 10 years helps stabilize payments



Note : The results illustrate total city contributions and funded ratio where long-term expected returns average 6.75 percent, and a scenario where average returns are lower than expected or average 5.25 percent over 30 years, assuming a **10 year period to amortize unfunded costs left after all preceding cost-sharing steps are exhausted**.

Source: Pew analysis using financial simulation models created for Pew by The Terry Group based on publicly available information from the POA, combined plan documents, actuarial valuations, and GASB financial statements for Detroit's new plan for the Police and Fire Retirement Systems

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- Eliminate the provision in PFRS cost-sharing language that requires the city to address unfunded costs left after all the other steps are exhausted within a short five-year time frame. This would match the GRS language but leave the PFRS plan without an explicit actuarial method in place to address unexpected costs. Pew's analysis of the risk-sharing features indicates that the plan would remain adequately funded even without an explicit actuarial backstop because the other cost-sharing features are robust.
- Apply all cost-sharing provisions, once activated, over a 10-year period. Current risk-sharing language can result in spikes in employer contributions, as well as ups and downs in employee contributions and COLAs, depending on the performance of the stock market. Doubling the time horizon for all risk-sharing provisions from five to 10 years, and keeping these policies in place until full funding is achieved, would increase stability for taxpayers and public employees.

Ultimately, city officials working with the pension plan investment committees can reduce unnecessary risk and potential confusion by clarifying the application and terms for these new cost-sharing arrangements in both the GRS and PFRS plans.

## Monitoring cash flow and planning for liquidity constraints

Detroit's legacy plan assets are expected to decline quickly during the transition period because contributions are projected at less than half of standard actuarial amounts. This means that the city pension plans will have to ensure that a relatively higher level of cash—or liquidity—is available to pay for promised benefits. In some cases, liquidity can limit the ability to invest assets following the investment policy, which in Detroit calls for a mix of stocks, bonds, real estate, and private equity.

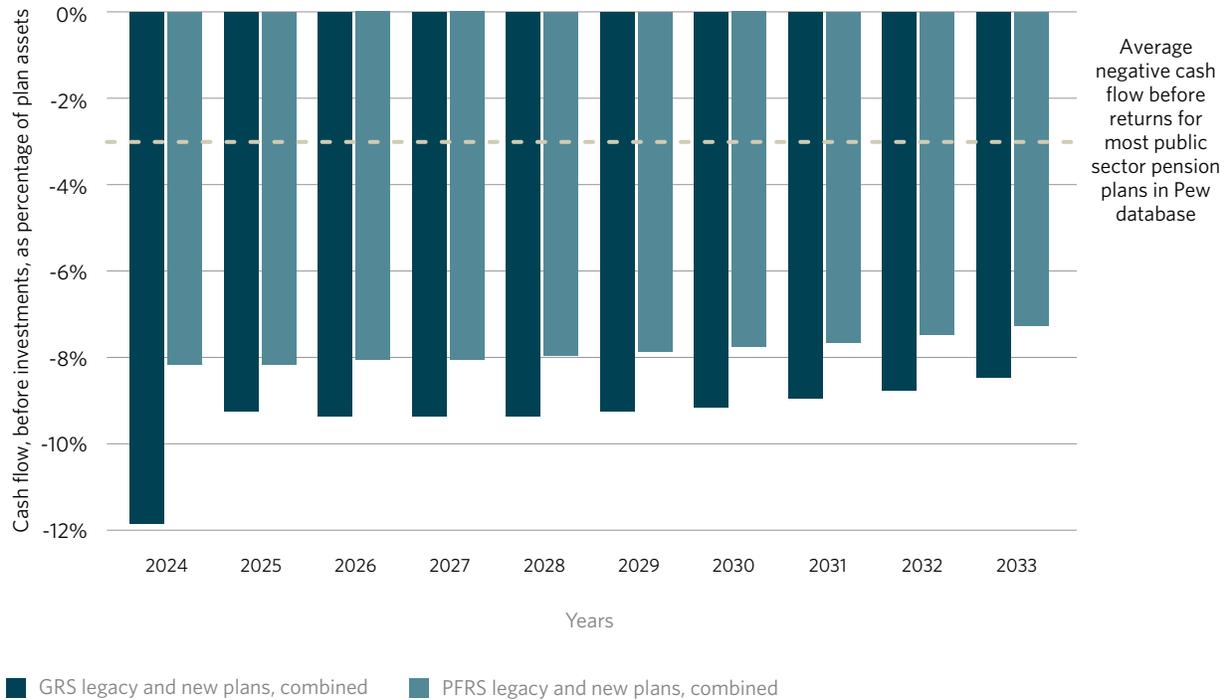
As benefits are paid out for the legacy plans, both assets and liabilities are expected to drop, which means more money going out of the funds than coming in—what is known as negative cash flow. This issue was examined in a 2015 city-commissioned study, which estimated that net payouts (benefit payments minus contributions) for Detroit's plans would represent more than 10 percent of plan assets per year; investment returns over “the next five to seven years were expected to fall short of long-term objectives” with the assumed rate of return of 6.75 percent.<sup>40</sup> The consultants emphasized the need for city officials to monitor cash flow and “reassess plan liquidity on an ongoing basis.”<sup>41</sup>

City officials will need to measure and plan for persistent liquidity constraints, which will require rigorous, ongoing fiscal analysis well beyond the scope of a standard actuarial valuation. Pew's analysis is consistent with the conclusions drawn by the consultants and indicates that this level of negative operating cash flow will persist over the long term. That will affect Detroit's overall ability to achieve the pension plans' target rate of investment returns for the next 20 years. Through 2023, negative cash flows will equal more than 10 percent of assets for legacy and new plans combined. Even after actuarial contributions for legacy debt resume in 2024, Pew projects that negative cash flow for both GRS and PFRS—averaging almost 9 percent of plan assets before returns—will persist for over two decades.

Figure 11

## Combined Cash Flow Projections for Detroit's Pension Plans

Funds will have negative cash flows averaging almost 9% as assets decline



Source: Pew and Terry Group analysis of publicly available plan documents, 2014 and 2015 GASB 67 statements for GRS and PFRS Component II, and 2015 and 2016 actuarial valuations for the new and legacy plans

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Most public pension plans at times experience negative cash flow, but the average is about 3 percent of assets, much less than what is projected for Detroit. In fact, Chicago and Providence, Rhode Island, are the only jurisdictions in the Pew database where negative cash flow is 7 percent or more of plan assets. Detroit officials and the retirement systems' investment committees will need to evaluate the medium- to long-term effects of liquidity constraints on pension fund investments and the ability to achieve the plans' targeted rates of return.

If investment returns are lower than plan assumptions, assets could be depleted sooner than expected, a critical consideration when evaluating the Detroit pension plans' fiscal sustainability.

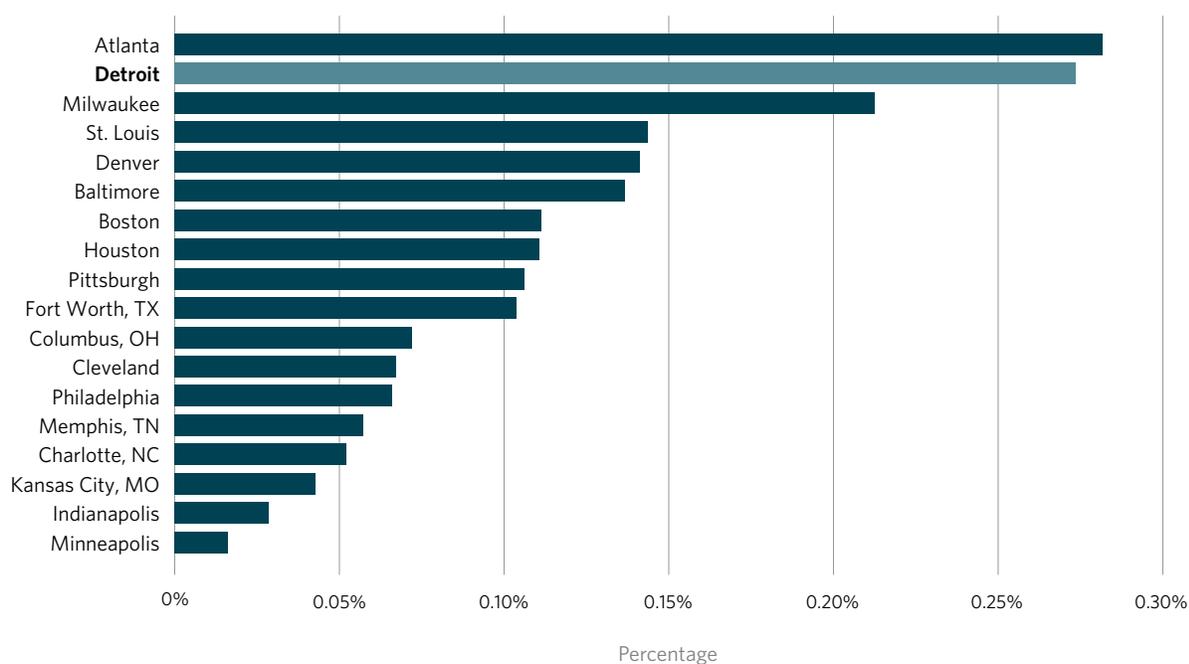
## Measuring and managing administrative expenses

In 2014, Detroit's administrative expenses were much higher than those of peer cities, driven primarily by legal fees probably associated with the bankruptcy. In 2015 and 2016, Detroit's administrative expenses declined but remained high. To supplement this review of Detroit's pension governance structure and practices, Pew analyzed administrative expenses for the pension systems so they could be compared with those of other cities. The comparison cities were chosen based on size and data availability and following an earlier list of peer cities compiled by Detroit officials. Comparative data were not yet available for all the benchmarking cities for 2015 and 2016.

Figure 12

### Select City Pension Administrative Expenses as a Percentage of Liabilities

Detroit reports second highest percentage of cost in FY 2014



Note: Expenses and liability are net of investment fees. Comparison cities were chosen based on size and data availability, informed by a previous list of peer cities compiled by Detroit officials. Administrative expenses for Detroit's pension plans were 0.21 percent and 0.19 percent in 2015 and 2016, respectively. Comparative city data was not available for 2015 and 2016 before publication.

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## Conclusion

There is no single approach to paying off closed retirement plan obligations. Cities and states have done this successfully using a variety of tactics. By examining established practices and taking into account the analyses and scenarios presented here, Detroit can tailor its long-term policies to fully fund pension promises for its legacy plans and the new benefit plans to fit its unique circumstances and goals. Implementing the recommendations in this report could augment the city's substantial efforts to date.

Detroit's circumstances are unique, but other jurisdictions facing similar challenges with their pension plans can consider the five primary elements of the city's process as a comprehensive model for an orderly path out of fiscal distress while honoring promises to workers. Like the steps being taken by the city of Detroit, they should:

- Conduct a balance sheet revaluation.
- Establish a transitional financing plan to allow for budget relief in the short term while providing a credible long-term plan to fully fund pension promises.
- When warranted, close legacy benefit plans to new participants, and consider whether existing employees should be placed in the new plans to accrue benefits going forward.
- Establish a new plan for new hires that allows for greater cost predictability while ensuring the government's ability to recruit and retain a strong workforce.
- Regularly review and revise governance and financial oversight structures.

Going forward, Detroit will need to continue to assess the effectiveness of its two new employee pension plans and their complex features that share risk between the employer and employees. Officials elsewhere may see elements that could work well in their jurisdictions, and situations in which such features might benefit from reviews and stress testing to ensure that they function as intended.

## Appendix

### Appendix A.1

## Membership in Detroit's General Retirement System and Police and Fire Retirement System

Retirees and beneficiaries outnumber active plan members

System	Active members	DROP* members	Inactive, nonretired members	Retirees and beneficiaries
General Retirement System (Component I and II)	4,881		2,728	12,026
Police and Fire Retirement System (Component I and II)	2,608	625	272	8,395
Total	7,489	625	3,000	20,421

\* Members who selected to participate in the Deferred Retirement Option Program.

Note:

DROP program eligibility:

- Age 62 or 55 with 10 years of service.
- Participation period: 5 years.
- Distribution option: lump sum, annuity.
- Interest: 75 percent of the net earnings rate of the assets of the retirement system (no greater than 7.75 percent).

Source: Detroit General Retirement System and Police and Fire Retirement System 2015 annual reports

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## Appendix A.2

# Reductions to Earned Pension Benefits Accrued Before the Effective Date of the POA

Retirees in Detroit’s existing plans saw significant cuts to their pension benefits as a result of bankruptcy negotiations

	Base pension	COLA	Retiree health care	Annuity savings fund*
<b>General Retirement System (GRS)</b>	4.5% reduction	Future COLAs eliminated	Direct coverage eliminated and replaced with income-based stipend toward purchasing coverage through the health care	Excess interest payments to retirees recouped†
<b>Police and Fire Retirement System (PFRS)</b>	None	Future COLAs reduced by 55%	Direct coverage eliminated and replaced with income based stipend towards purchasing coverage through the healthcare exchange	Lowered interest rates‡

Note:

\* Annuity savings fund (ASF)—individual, voluntary defined contribution accounts that allowed employees to make voluntary contributions for additional retirement savings. Part of the pre-bankruptcy benefits altered by the POA.

† For GRS: Interest payments from 2003 to 2013 that had been paid out to retirees on their ASF accounts were recalculated at market rate of return on funds, with a floor of zero and a cap of 7.9 percent, and was recouped from retirees. Cumulative effects of ASF cuts and the cut to the base pension amount capped at 20 percent of the total retiree benefit.

‡ Payments toward the annuity fund accounts for PFRS members were changed to be calculated at the lower, actual rate of return, but not below zero or above 5.25 percent, and no in-service withdrawals were permitted.

Source: Pew analysis of Detroit’s POA

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## Detroit voluntary employee beneficiary association settlement

Before the city bankruptcy, public workers in Detroit with at least eight years of service were eligible to receive health care benefits in retirement from city-sponsored health plans. They also were eligible for a contribution for up to 90 percent of health care premiums. In early 2014, after the bankruptcy declaration, Detroit notified retirees that there would be significant changes to their city-sponsored health care plans. In response, the retiree committee filed suit against the city, seeking to prohibit it from unilaterally changing these benefits. The city and the retirees negotiated these claims as part of the general bankruptcy settlement and reached an agreement that was incorporated in the POA.

According to the agreement, workers who retired before 2015 could expect to receive reimbursement for a smaller percentage of future health care expenses while retiree health benefits were discontinued for future

retirees. Detroit agreed to set up a voluntary employee beneficiary association (VEBA) for those already retired from the GRS and their beneficiaries, and another for retired PFRS members and their beneficiaries. The VEBAs pay health benefits, as well as life insurance, to former employees who retired before Jan. 2, 2015. Each VEBA is governed by a board of trustees responsible for management of its assets, for its administration, and for determining beneficiaries' benefits.

Detroit funded these VEBAs with promissory notes to make contributions to trusts valued at \$450 million over the course of the next 30 years. The city used various sources to fund VEBA startup costs, including money from a reserve fund held in the currently existing benefits plans and about \$3.5 million from charitable contributions. As a result of this settlement and creation of the VEBAs, as of the approval of the POA, Detroit is no longer required to directly pay for retiree health care and removed more than \$4.3 billion in these unfunded liabilities through the bankruptcy process.<sup>43</sup> The city is still, however, obligated to pay for the promissory notes that fund the VEBAs.

Both the GRS and PFRS Component II plans now have medical benefit funds, which include contributions made to fund medical benefits (which are defined as the "provision of payments for certain sickness, accident, hospitalization and medical benefits within the meaning of Treasury Regulation section 1.401-14(a), and including dental, vision and mental health benefits, as designated by the City"). Further, the plans define their "Retiree Medical Benefits Accounts, which are established and maintained under the Retirement System out of which the Board shall pay the cost, which would otherwise be borne by the City," and which are intended to comply with Section 401(h) of the Treasury Regulations mentioned above. Although the board will pay the cost, the city will make actuarially determined contributions to this fund and reserves the right, retroactively if permitted by law, to amend, change, or terminate the plan.

## Appendix A.3

# Detroit Defined Benefit Plans Before and After Bankruptcy

## Reduced benefits and increased employee contributions

Criteria	General Retirement System (GRS)		Police and Fire Retirement System (PFRS)	
	Pre-bankruptcy defined benefit plan	Post-bankruptcy defined benefit plan	Pre-bankruptcy defined benefit plan	Post-bankruptcy defined benefit plan
Eligibility	Age 55 with 30 years of service (or 60/10, 65/8)	Age 62 and 10 years of service	25 or 20 years of service	Age 50 and 25 years of service (or 62/10)
Multiplier	1.5%-2.2%	1.5%	2.1%-2.5%	2.0%
Average final compensation formula	Highest consecutive 5 over last 10 years (sick leave was included from 1999-2014)	Last 10 years (base pay only)	Average salary in past five years (sick leave was included)	Average salary in past five years (base pay only)
COLA*	Up to 2.25%, non-compounding	Up to 2%, non-compounding	2.25%, compounded for service before 2011	None or 1%, compounded
Employee contributions	None	4% of base pay (can go up to 6% if plan funding targets are not met)	None†	6% payroll for actives in 2014, and 8% for new hires (can increase by up to 4 percentage points if funding targets are not met)
Employer contributions‡	Projected at 12% payroll for normal cost (42% overall in FY 2013)	5% of base pay	Projected at approximately 25% payroll for normal cost (49% overall in FY 2013)	11% or 12% of payroll depending on job classification

Note:

\* COLA, or pension improvement factor, is generally applied as a percentage, between zero and 2.25 percent, increase in the retiree's annual retirement allowance, noncompounding, computed each year on the basis of the amount of the original retirement allowance received at the time of retirement, provided that the recipient shall have attained age 62 and shall have been receiving a retirement allowance for a period of not less than 12 months before the first day of such plan year.

† Some members were required to pay 5 percent of compensation until the member acquired 25 years of service and attained age 55.

‡ Employer contributions for Component I are set at fixed percentages in the POA until 2024.

Source: Pew analysis of the POA

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Appendix A.4

## Detroit Pension Plans' Annuity Savings Fund (ASF) Before Bankruptcy Compared With Voluntary Employee Contributions Accounts Post-Bankruptcy

Reduction in the amounts allotted to the voluntary defined contribution component of the retirement plans

Plan	General Retirement System (GRS)		Police and Fire Retirement System (PFRS)	
	Pre-bankruptcy annuity savings fund	Post-bankruptcy voluntary employee contributions account	Pre-bankruptcy annuity savings fund	Post-bankruptcy voluntary employee contributions account
Employee contributions	Optional: Blended rate between 3% and 5%, or 7%	Optional: 3%, 5%, or 7%	Mandatory 5%	Optional 1-10%
Employer contributions	None	None	None	None
Interest credits	Given at the higher rate of return—between the assumed rate or actual return—with a cap of 7.9% and occasional one-time bonus payments	GRS actual net rate of return two fiscal years before, but not below 0% or above 5.25%	Not less than 0% and no more than the higher rate of return—between the assumed rate or actual rate of return	PFRS actual net rate of return two fiscal years before, but not below 0% or above 5.25%

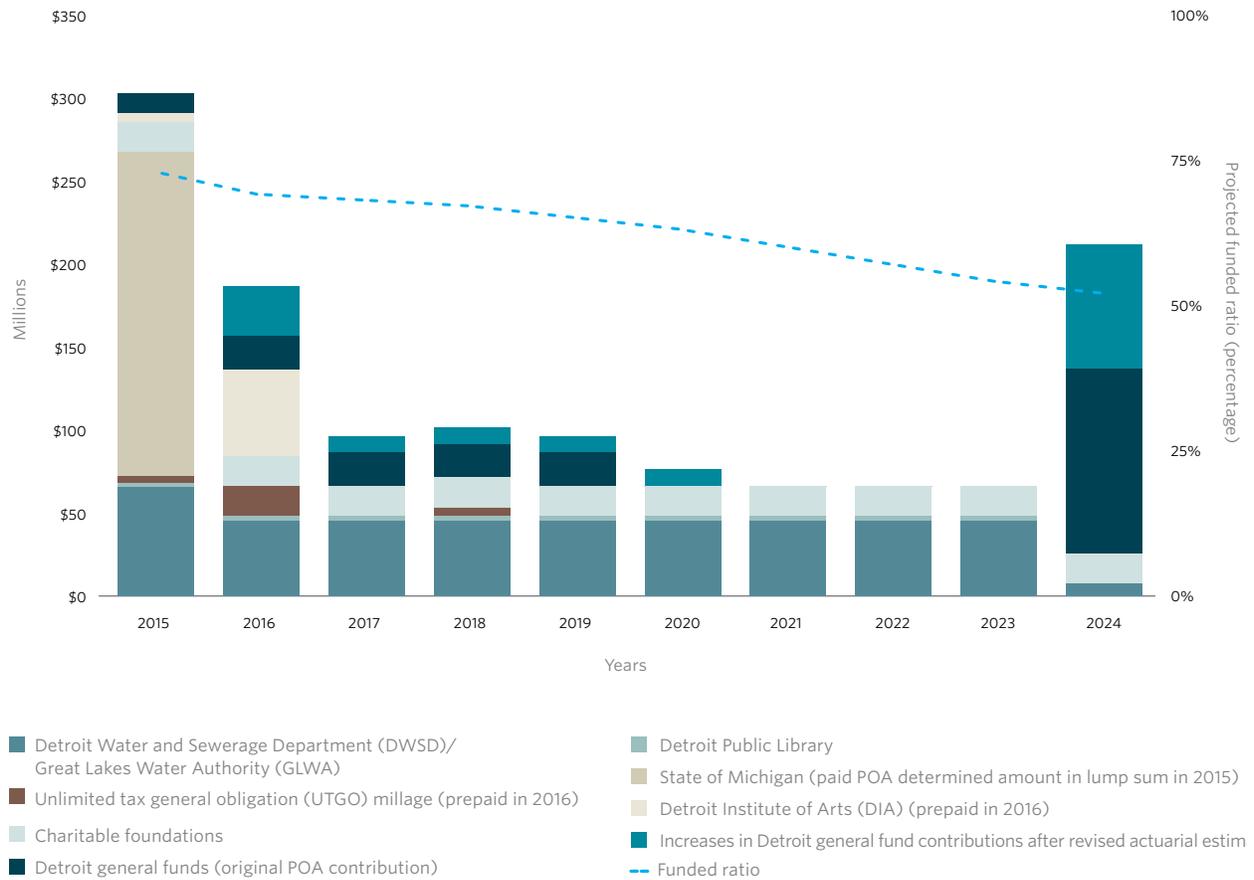
Source: Pew analysis of the POA, 2013 GRS and PFRS annual reports, and GRS and PFRS combined plan documents

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Appendix A.5

# Contributions and Funded Ratio for Legacy Pension Plans Under POA

Transaction financing plan intended to provide near-term budget relief



Note: This figure illustrates all sources of contributions to the city’s legacy plans from FY 2015 to FY 2024, when the city is required to resume full pension payments toward the legacy plans. The chart includes the original contribution agreement amounts identified in the POA, as well as expected increases already forecasted based on the approximately \$1.3 billion increase in estimated pension debt, and other updates to the contribution agreements (DIA and UTGO prepayments in 2016). Payments dedicated to Retiree Protection Trust Fund are not included.

Source: Pew and Terry Group analysis of the POA, FRC November 2015 biannual report, and revised estimates in the actuarial analysis produced for the city in October 2015 (includes updates through December 2016)

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## Growth in pension debt since the POA

According to the revised actuarial estimates, Detroit’s projected pension debt will total over \$2.7 billion in fiscal 2024 for the city’s frozen pension plans—100 percent higher than the amount originally estimated. As of fiscal 2015, the total pension debt based on the latest actuarial valuation is approximately \$500 million higher than the amount estimated for the same year at the time of the POA, and by fiscal 2024, Pew estimates that the increase will grow by about \$1.3 billion.

### Appendix A.6

## Summary of Increase in Pension Debt From Original Actuarial Estimate

Revised analysis using updated mortality and other assumptions contribute to \$1.3 billion growth since the POA

	Pension debt in 2014 (in millions)	Pension debt in 2023 (in millions)
<b>Original actuarial estimate</b>	\$1,447	\$1,376
<b>Revised actuarial estimate</b>	\$1,938	2,754
<b>Increase in revised actuarial estimate</b>	\$491	\$1,332

Source: Pew and Terry Group analysis of publicly available information from the POA, FRC biannual reports, revised estimates in the actuarial valuations produced for the city in October 2015, and 2015 and 2016 actuarial valuations

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The difference from the original to current projected pension debt by 2024 reflects a \$615 million difference, largely attributed to changes in demographic and actuarial assumptions, including more conservative assumptions on mortality (assuming higher total pension benefit payments for workers across their retirement) compared with the original assumptions.<sup>44</sup> Other factors include delays in implementation, changes in retirement rates, and higher salaries than originally assumed. By 2023, the projected impact of these changes will increase by \$321 million. Lower-than-projected investment returns in fiscal years 2014 through 2016—14.5 percent for GRS and 18.4 percent for PFRS in 2014, 2.6 percent for GRS and 3.4 percent for PFRS in 2015, and 1.4 percent for GRS and 2.5 percent for PFRS in 2016—account for an additional \$553 million.

Appendix A.7

## Sources of Changes to Pension Debt Since Plan of Adjustment

Updated demographic assumptions and lower-than-expected investment returns lead to significant growth in debt

Source of change	As of	Amount of pension debt adjustment (in millions)
Demographic and assumption changes	June 30, 2014	\$615
Compounded effect of the impact of demographic and assumption changes	June 30, 2023	\$321
2014-2016 investment experience	June 30, 2023	\$553
Changes to administrative expense expectations	June 30, 2023	-\$157
<b>Increase in unfunded actuarial accrued liability from POA*</b>		<b>\$1,332</b>

Note:

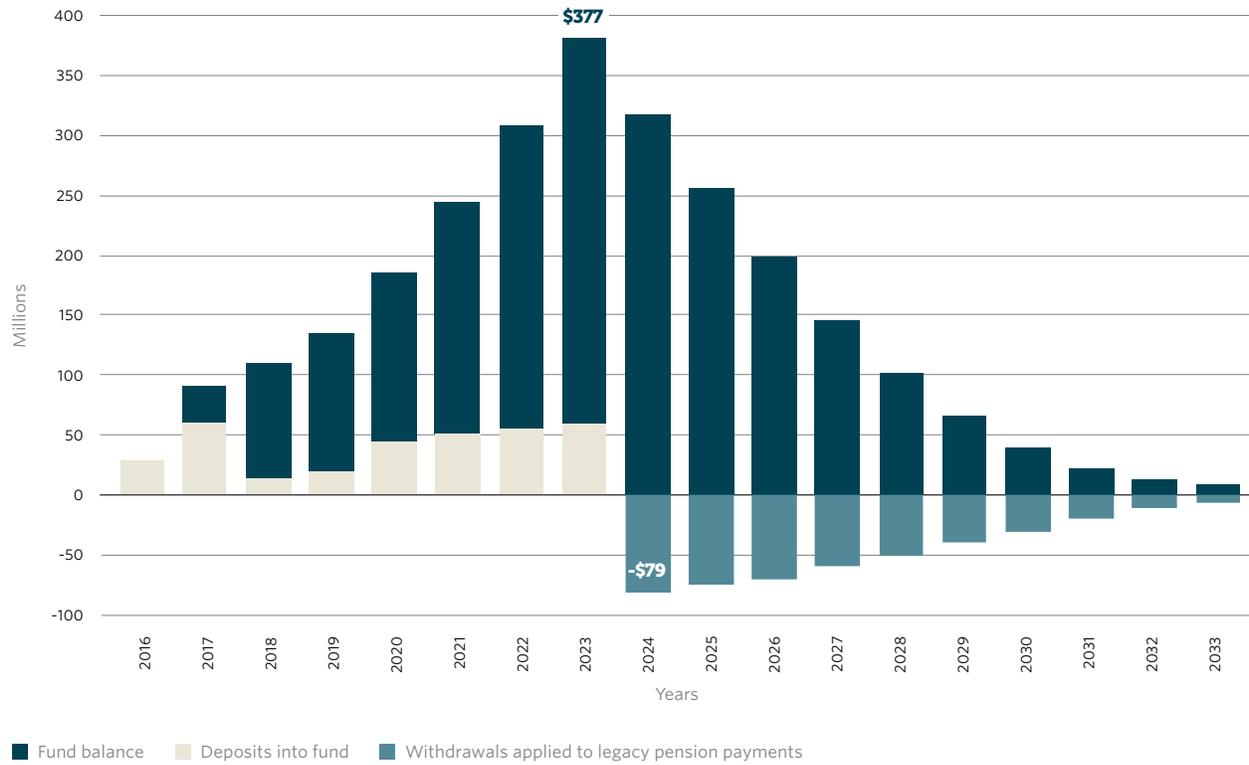
\* Does not include potential revision to lower liabilities if the Society of Actuaries' MP-2015 mortality table is adopted.

Source: Pew and Terry Group analysis of information from the POA, FRC biannual reports, and revised actuarial estimates produced for the city in October 2015

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Appendix A.8

## Retiree Protection Trust Fund Ramp-Up and Drawdown Provides a smooth transition to resume full pension contributions



Source: Pew analysis based on the "Funding Strategy for Legacy Pension Obligations," presented to FRC in February 2017; and FRC biannual report No. 5, issued May 2017

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## Approaches to Meet Pension Costs

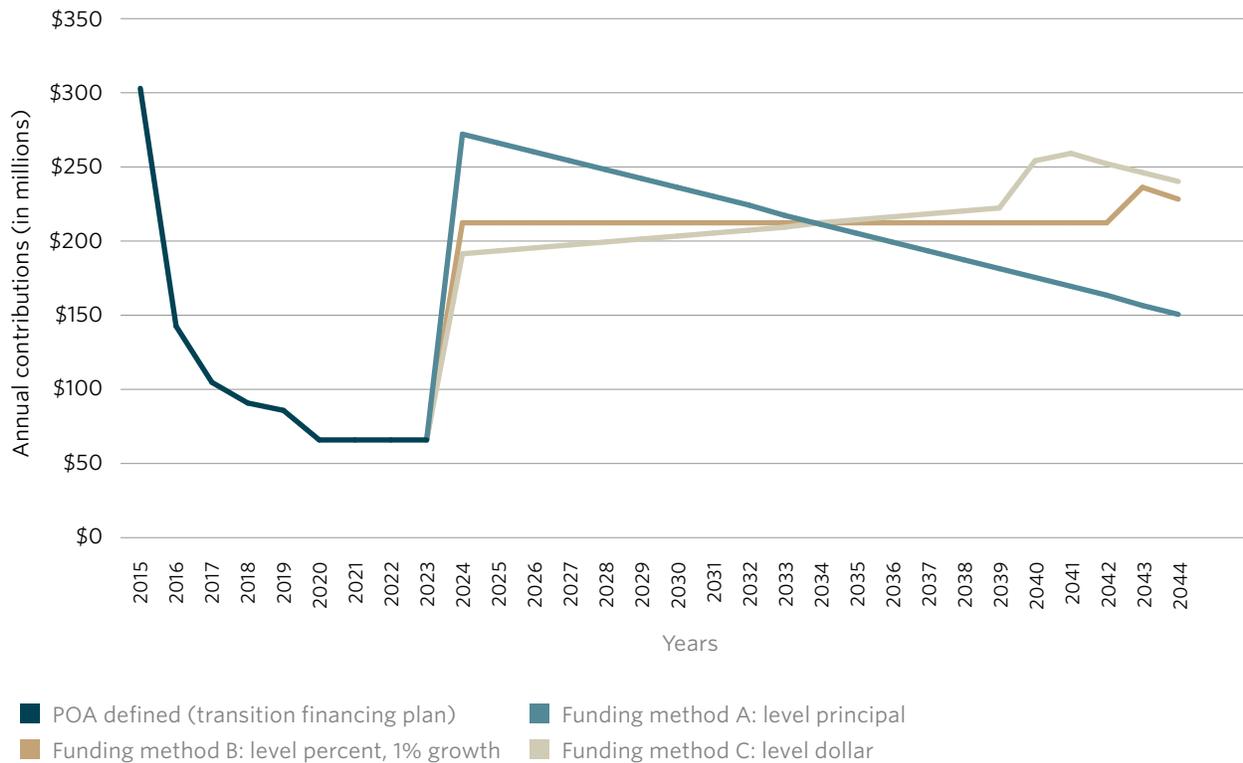
### Standard actuarial methods for amortizing unfunded liabilities

Amortization policy	Definitions
Level percentage of payroll (also referred to as level percent of pay)	Contributions set as a percentage of projected payroll sufficient to fund new benefits and pay down the unfunded liability. Annual payments start low and grow over time. This is the most common method used for open plans.
Level dollar	Contributions set as equal payments over a specified number of years to be sufficient to fund new benefits and pay down the unfunded liability. Similar to a mortgage.
Level principal (also referred to as declining balance)	Contributions set to decline over time. Payments calculated as a set percentage of equivalent reductions in principal each year, with declining interest and total payments over the course of the amortization period. Rarely used, this was the formula applied in the actuarial projections at the time of the POA.
Pay-as-you-go (also referred to as pay-go)	Contributions pay for benefits as they come due, rather than pre-funding benefits as they are earned.
Amortization policy	Schedule for paying down unfunded liabilities. Can be open or closed (see below).
Closed amortization	Unfunded liability, and any future actuarial losses, will be paid down over a fixed time period.
Open amortization	Calculation setting contribution needed to pay down pension debt resets each year. If actuarial assumptions are met, pension debt may shrink but will not be fully paid off.
Layered amortization	Unfunded liability paid down over a fixed time frame. Future actuarial losses would be funded over separate payment periods.

Appendix A.10

## Projected Contributions to Legacy Pension Plans Under Different Funding Policies

Level percent of pay and level-dollar policies provide budget flexibility in near term but could increase costs in later years



Note: Hooks in funding method B and C after 2040 illustrate when GRS may transition to pay-go funding. Projections after 2024 are total contributions, including payments from other sources and required city contribution from the general fund.

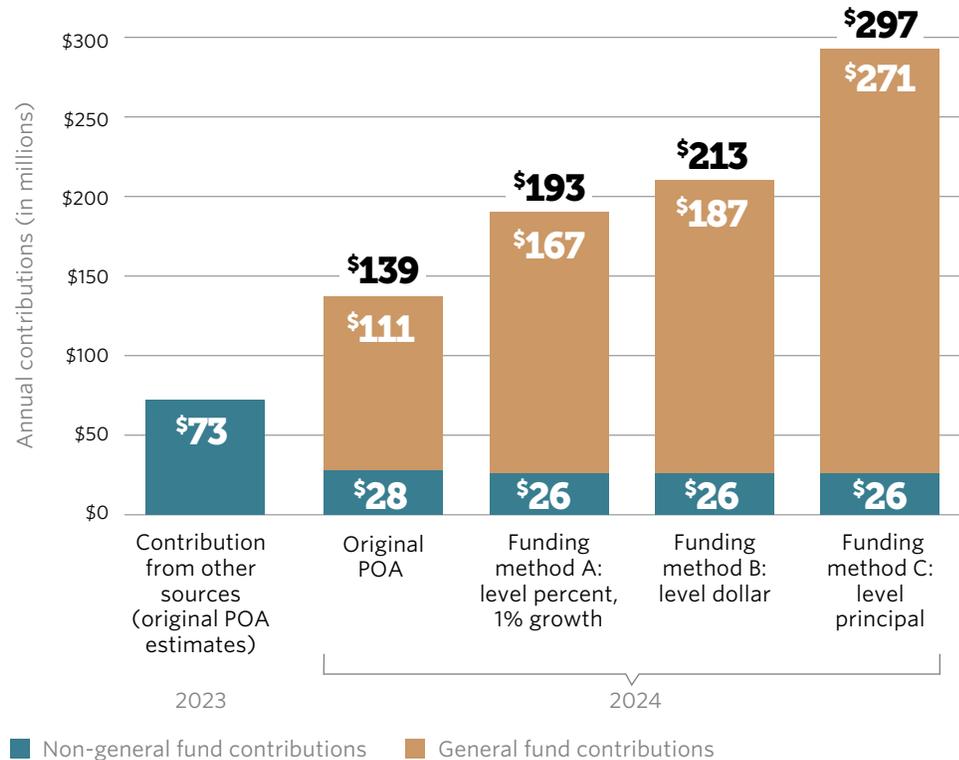
Source: Pew and Terry Group analysis using publicly available information from the POA, combined plan documents, annual reports, actuarial valuations, and GASB statements for the GRS and PFRS legacy pension plans

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Appendix A.11

## Detroit's Projected Legacy Pension Contributions for 2024

Payment depends on funding approach



Note: Non-general funds are payments from other sources (charitable foundations, DIA, etc.) as per the POA contribution agreements, but updated as of 2016 to include the early pre-payments for the DIA and UTGO millage settlement

Source: GRS and PFRS Component II financial simulation models created for Pew by The Terry Group

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### Further explanation of closed and open plan funding methods

Pension benefits are paid for by contributions into the plan by workers and government plan sponsors, as well as the compounded investment earnings on those funds. For plans that are open to new employees, government employers typically follow funding policies and make regular contributions to pay for new benefits earned by current employees, as well as amortization payments toward a portion of unfunded pension liability, or pension debt, for benefits earned in the past.

Funding policies for closed plans need only address the unfunded liabilities—the difference between assets in the plan and the estimated value of pension promises made to workers as calculated by actuaries—by providing contributions to the pension fund that, when combined with existing assets, are sufficient to ensure that promised benefits are made. The funding policy may need to account for a lower rate of return on investments in the last years before final payments are made as assets shift to more liquid investments.

## Freezing a pension plan and examples of other cities and states

The POA called for a “hard freeze” of the PFRS and GRS plans. Service accruals under the existing pension plans were effectively halted as of June 30, 2014. Under a hard freeze, assets remain in the plan and are paid out when participants retire or leave, but benefits do not grow with additional years of service. In a soft freeze, a pension plan is closed to new hires, while active participants in the plan continue to accrue benefits. In a partial freeze, benefit accrual is halted for some participants, depending on age, tenure, or job classification. Though increasingly seen in the private sector, hard freezes of retirement plans are rarely used in state and local government plans.

The examples below reflect instances when state or city governments closed a primary pension plan to new workers while committing to pay benefits to retirees. Oregon and Rhode Island offer examples of a hard freeze with changes to some benefits. Other municipal bankruptcies have limited applicability, both because of their smaller scale and because these cities did not include pension debt in their plans of adjustment.<sup>45</sup>

## Appendix A.12

### Examples of Closed Pension Plans

Cities and states take a variety of funding approaches

Plan name	Year closed	Reason plan closed	Funding method	Amortization period*
<b>Alaska Public Employees Retirement System (PERS)</b>	2006	Defined contribution plan created for new hires	Level percent	25 years
<b>Bridgeport, CT, Fire Pension Plan B</b>	2012	New hires enrolled into state municipal plan	Level dollar	24 years
<b>Indiana Pre-1996 Teachers Retirement Fund (Pre-1996 TRF)</b>	1995	Plan historically pay-as-you-go. New plan for teachers hired on or after 1996 is actuarially funded—old plan kept pay-as-you-go.	Pay-as-you-go	30 years <sup>†</sup>
<b>Indianapolis Pre-1977 Police and Firefighters Plan</b>	1977	Closed to new hires, transferred management of funds to state and enrolled new hires into state plan	Pay-as-you-go	N/A
<b>Michigan State Employees Retirement System (MSERS)</b>	1997	Defined contribution plan created for new hires	Level dollar	30 years
<b>Minneapolis Employees Retirement Fund (MERF)</b>	1979	Closed to new hires in 1978. In July 2010 plan was consolidated and moved to be administered by the state retirement system	Level percent	18 years
<b>Nebraska Public Employees Retirement System (NPERs)</b>	2002	Cash balance plan created for new hires	Level dollar	25 years
<b>New Orleans Firefighters Pension Relief Fund (Old System)</b>	1967	New hires enrolled in new plan	Pay-as-you-go	10 years
<b>Oregon Public Employees Retirement Defined Benefit Pension Plan Tier 1 and 2 (PERS DB)</b>	2003	New hires enrolled in hybrid plan	Level percent	20 years
<b>Texas Judicial Retirement System Plan I (JRS I)</b>	1985	Replaced by JRS II plan for new hires	Pay-as-you-go	N/A <sup>‡</sup>
<b>Washington State Public Employees Retirement System Plan I (PERS Plan I)</b>	1977	Defined benefit plan created for new hires	Level percent	10 years

\*Current amortization period

<sup>†</sup>A 30-year, level-dollar approach was used to amortize the unfunded accrued liability for actuarial projections.

<sup>‡</sup>No

Source: Pew analysis of publicly available data from plan documents, annual reports, and valuations, 2017

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The level percent and pay-as-you-go methods are the most commonly used by plans in our study. Three plans proceeded on a level-dollar amortization method. Level dollar is a standard actuarial funding method that typically requires higher payments and achieves accelerated funding compared with level percent of payroll, the practice followed by most public sector pension plans. Absent from this list is the level principal method that was used in actuarial analyses commissioned by Detroit at the time of the POA negotiations.

### Oregon and Rhode Island reforms

Policy changes in Oregon in 2003 and Rhode Island in 2011 offer the closest comparisons to Detroit's hard freeze of the Component II plans and clawback of some of the benefits among other public sector plans.

In 2003, the Oregon Legislature established the Oregon Public Service Retirement Plan (OPSRP) Hybrid Plan for new employees and passed House Bill 2003. That measure included cuts to retirement benefits, including suspension of future payments of COLAs for retirees under the Tier I and Tier II defined benefit plans and a way to recoup previously awarded overpayments from earnings credited to member accounts on interest in 1999. The changes were an attempt to address some of the system's considerable unfunded liability, which was estimated at over \$16 billion at the time for the Public Employees Retirement System (PERS).<sup>46</sup> These legislative attempts to alter benefits were met with lawsuits from retirees, who said the state was negating constitutionally required contractual obligations.<sup>47</sup> The Oregon Supreme Court eventually ruled that the COLA freeze and recoupment of overpayment from earnings crediting were invalid. The court required that COLAs frozen from April 2000 through March 2004 be restored. The state's top court allowed some changes that affected current employees and reduced the reported unfunded liability.

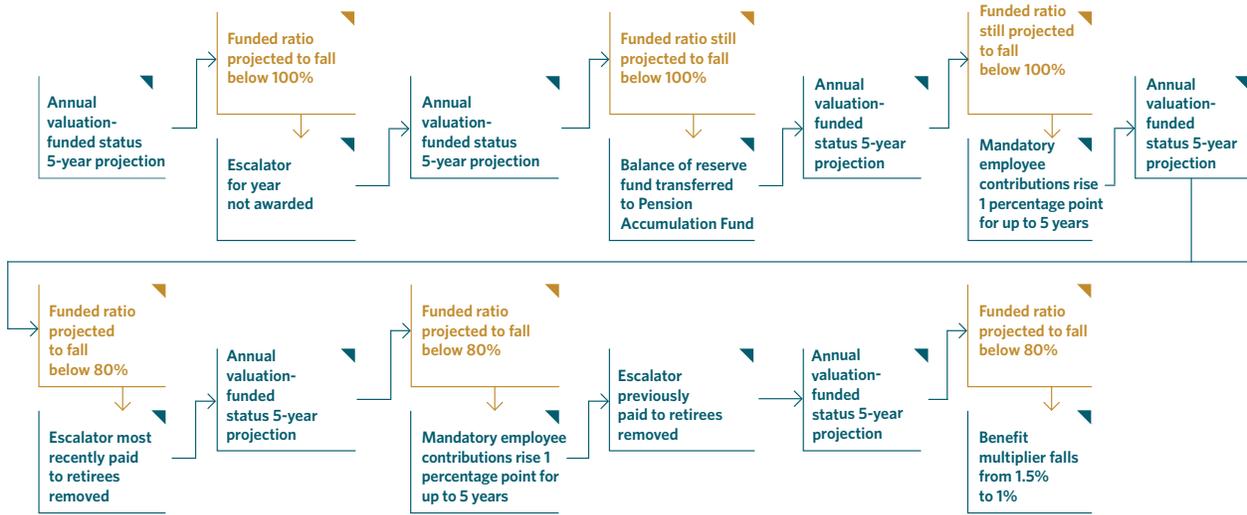
In 2011, the Rhode Island Retirement Security Act (RIRSA) proposed changes to the core benefit formula for active employees that resulted in a hard freeze of accruals under the old defined benefit plan. Active employees would receive future accruals under the reduced defined benefit (with a multiplier of 1 percent rather than the previous 1.7 percent) along with a new defined contribution component. The provisions also included changes to the retirement age and tied the COLA to the system's funding level.

Labor unions and retirees challenged some of the proposed changes in courts. The state, labor unions, and retirees reached a settlement on the parameters of the benefit changes in 2015. The settlement retained the core changes in the law, which brought the most substantial change to active employee benefits seen in any state. Unlike Detroit, while benefit accruals were reduced for active employees, the retirement plan was not closed; new benefits accrued under a hybrid plan with a reduced defined benefit formula. The same plan administration provided the new plan. Had policymakers chosen to switch to a sole defined contribution retirement option, a plan closure might be needed, but changes that just alter the defined benefit parameters can be made through either closing a plan and opening a new one, or through changes within the existing retirement program's structure.

Appendix A.13

## Summary of Adjustments to Employee Contributions and Benefits Under the New Pension Plan for Detroit’s General Retirement System

New plan includes complex cost-sharing features that share risk between the employer and pension plan members



Note: Funding levels for both plans are projected at the time of the annual valuation over a five-year period with a two-year delay between initial valuation projection and resulting remedial actions being implemented. Each percentage increase to contributions is triggered for up to five years. Once cost-sharing measures are implemented, funded ratios of both the General Retirement System (GRS) and Police and Fire Retirement System (PFRS) plans must be projected to be restored to not less than 100 percent over the five-year period for remedial measures to switch off and benefit levels to be restored to default rates. At least until 2034, the GRS and PFRS investment committees are responsible for activating these features as necessary as outlined in Section 15.2(k) of the GRS and Section 16.2(k) of the PFRS combined plan documents.

Source: Pew analysis of information from the “Combined Plan Document for the General Retirement System of the City of Detroit,” specifically Section 9.5, Fiscal Responsibility: Benefit Reductions and Increased Funding Obligations

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## Examples of cost sharing in other public sector plans

Examples and brief descriptions of cost-sharing features used by other public sector plans have been described in a separate Pew report.<sup>48</sup> The examples are based on an analysis of more than 100 of the largest public defined benefit plans across the country. Pew identified 29 plans in 17 states that use formal mechanisms to distribute unexpected risk between the employer and employees, referred to as cost-sharing measures.

Arizona, Iowa, Minnesota, Tennessee, Utah, and Wisconsin are among those that utilize varying mechanisms to share costs in their defined benefit plans. Tennessee and Utah are particularly germane examples because, as in Detroit's new pension plans, their retirement programs include both a defined benefit and defined contribution component, as seen in a traditional hybrid plan, but they also allow for risk sharing between the employer and employee on the defined benefit portion of their plans.

## New Brunswick's shared risk plans, a Canadian variation

New Brunswick's shared risk pension plans provide a good example of risk-sharing regulatory framework. In 2012, the government of Canada's New Brunswick province adopted regulations to create an optional, shared-risk pension plan. This approach allows contribution and benefit adjustments when the plan funded ratio falls below a certain threshold.<sup>49</sup> The plan is open to both public and private employers, and a variety of unions and public employers have joined.

Under the framework, retirement benefits are split into categories of base pension benefits and ancillary pension benefits, which include other post-employment benefits, such as retiree health care and COLAs. Individual plans can set parameters for increases in employer and employee benefits within a certain range defined by the provincial statute that set the risk-sharing pension plan design.<sup>50</sup> If the plan's funded level falls below 100 percent for two consecutive years, cost-sharing features are activated in the following order: an increase in both employer and employee contributions, reduction of future ancillary benefits, and reduction of future base retirement benefits. If the first steps are not enough to restore full funding, the system can reduce past and future base retirement benefits. These reductions stay in place until a new target ratio of 105 percent is reached. Individual plans can use excess returns when funding ratios are above 105 percent to reverse risk-sharing benefits cuts.

New Brunswick uses an unusually rigorous measure to determine the funding levels that activate the cost-sharing features. Each year, plan actuaries must project the plan's funded status for both the next 15 and the next 20 years in over 1,000 potential scenarios. In addition to this thorough stress testing, New Brunswick's plan sets a clearly defined range for how much employer and employee contributions can increase in response to low funded levels, ensuring more cost predictability for both sides of the equation.

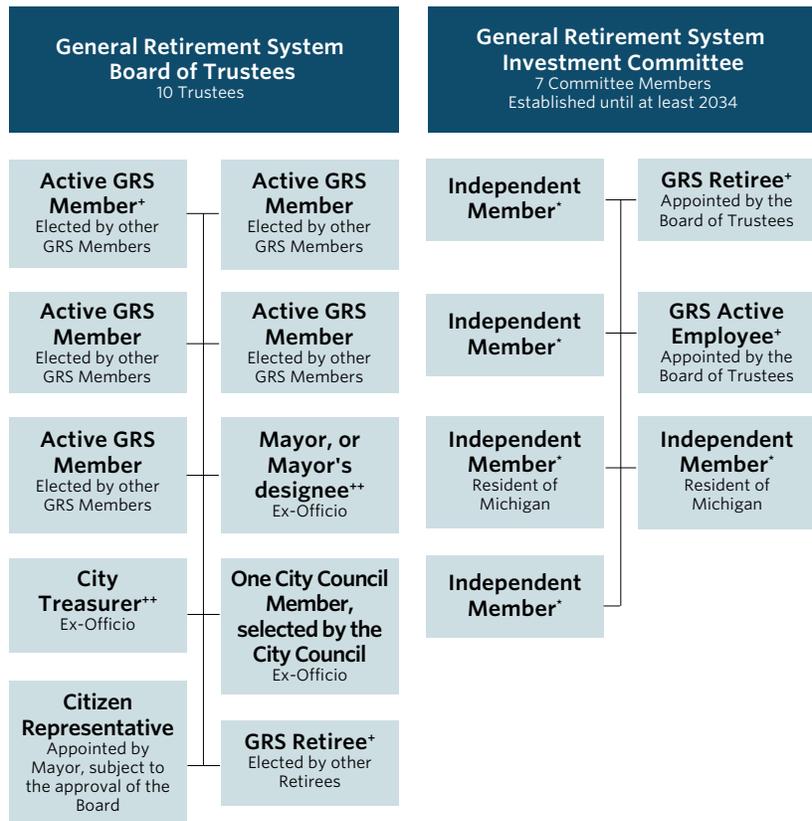
Although New Brunswick's plan is similar to Detroit's Component I plans, it provides much clearer guidelines around how and when risk-sharing mechanisms take effect. With more clearly defined measures, Detroit could reduce any spikes in amortization payments associated with the cost-sharing features and the ambiguity of what happens if cost-sharing features are exhausted and the plan remains underfunded.

## New governance structure for the city's pension plans

### Appendix A.14

## Governance Structure of the City of Detroit's General Retirement System (GRS)

New structure includes the addition of a seven-member investment committee



\* Independent members must be experienced practitioners in the fields of economics, finance, institutional investments, actuarial science and/or retirement system/benefits administration. Initial independent members shall be selected by mutual agreement of the appropriate representatives of the state of Michigan, the city, and the board, in consultation with the Foundation for Detroit's Future, as named in the POA.

+ Individual serves on both the Board of trustees and investment committee for the same system.

++ Individual serves on both systems (PFRS and GRS) boards of trustees.

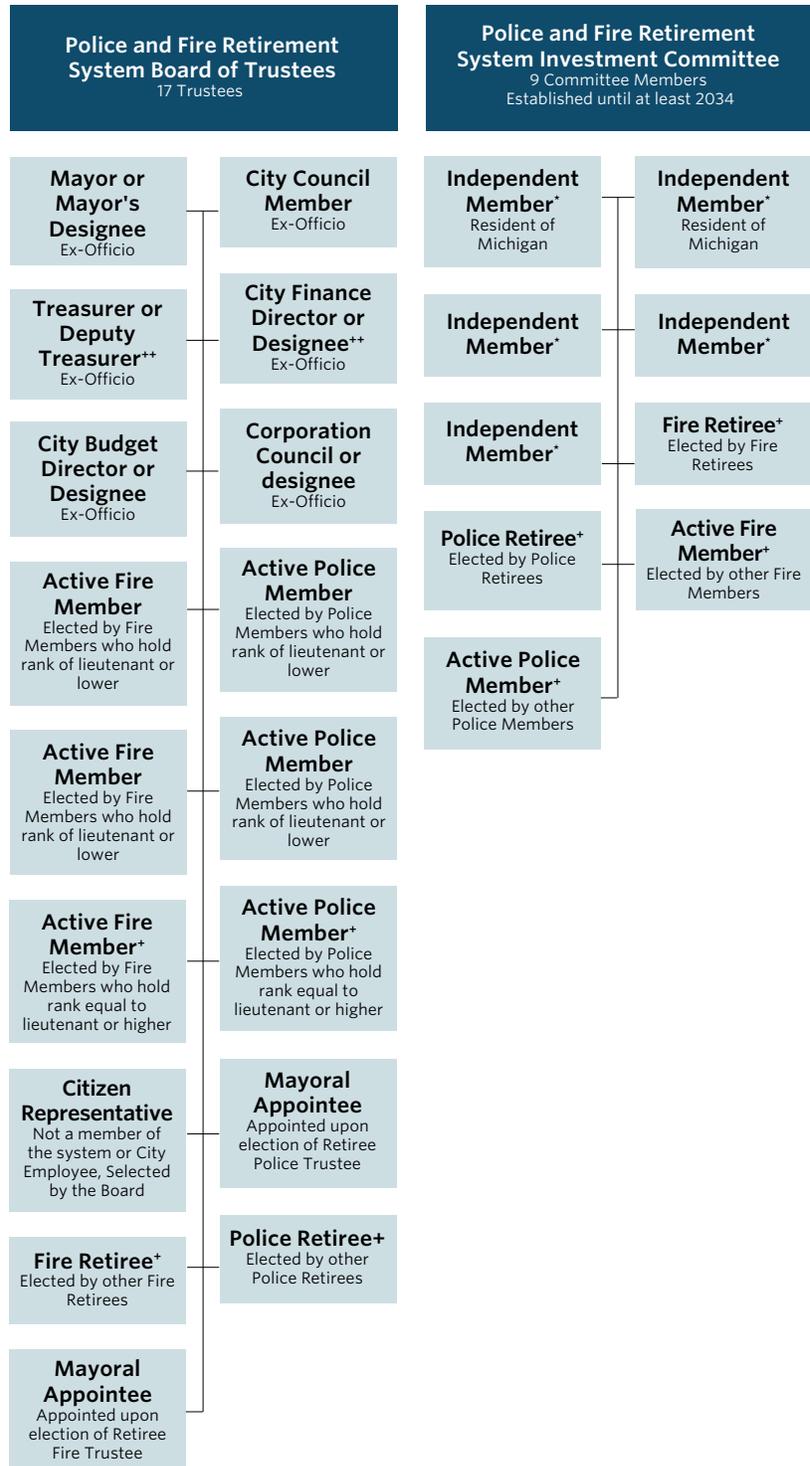
Source: Pew analysis of Detroit's plan of adjustment and the combined plan document for the General Retirement System

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Appendix A.15

# Governance Structure of the City of Detroit's Police and Fire Retirement System (PFRS)

New structure includes the addition of a nine-member investment committee



\* Independent members must be experienced practitioners in the fields of economics, finance, institutional investments, actuarial science and/or retirement system/benefits administration. Initial independent members shall be selected by mutual agreement of the appropriate representatives of the state of Michigan, the city, and the board, in consultation with the Foundation for Detroit's Future, as named in the POA.

+ Individual serves on both the board of trustees and investment committee for the same system.

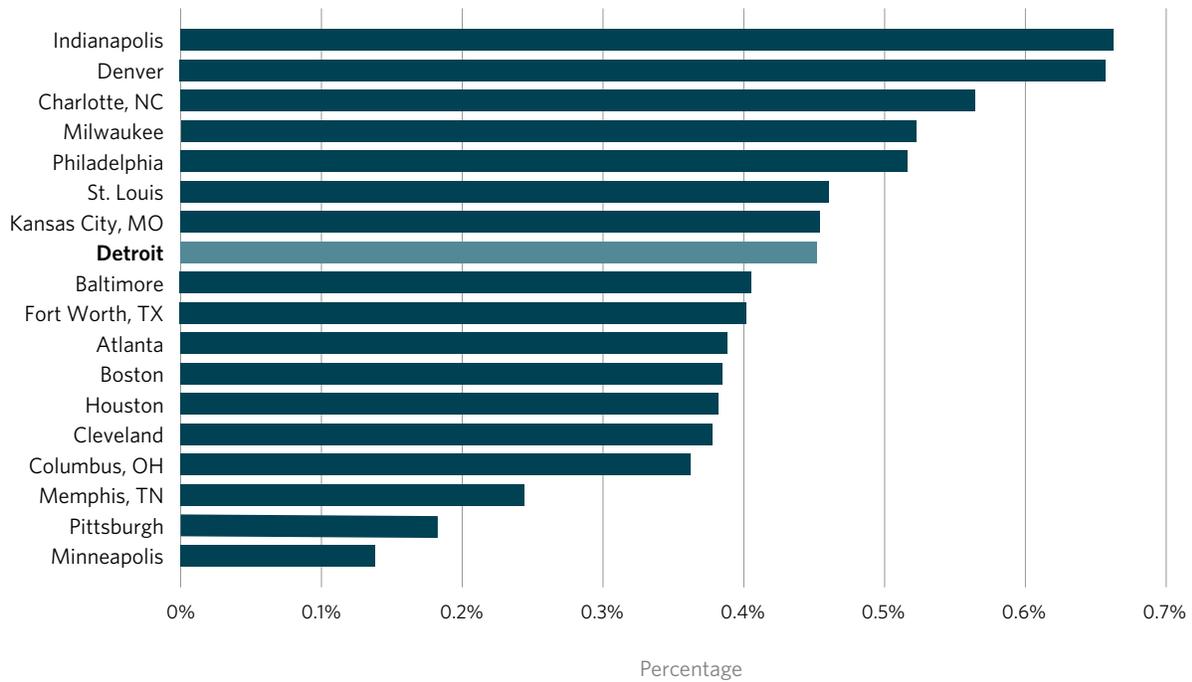
++ Individual serves on both systems (PFRS and GRS) boards of trustees.

Source: Pew analysis of Detroit's plan of adjustment and the combined plan document for the Police and Fire Retirement System

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Appendix A.16

## Detroit Pension Plans Investment Expenses as a Percentage of Assets Totals for FY 2014 compared with other cities



Notes: Expenses and liabilities are net of fees. Comparison cities were chosen based on size and data availability, informed by a previous list of peer cities compiled by Detroit officials. Investment expenses for Detroit's pension plans were 0.47 and 0.46 percent in 2015 and 2016 respectively. Comparative data for other cities were not yet available for 2015 and 2016.

Source: Pew analysis of publicly available data from the plan annual reports; actuarial valuations available for comparative cities; and 2014, 2015, and 2016 audited financial statements for PFRS and GRS pension plans

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## Endnotes

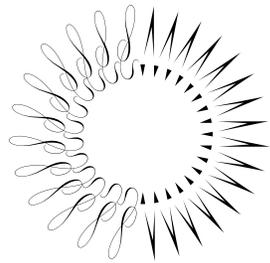
- 1 The actuarial models produced for Pew are based on the latest publicly available actuarial valuations and do not include potential updates in mortality assumptions; Detroit's reported pension liabilities increased following updated mortality assumptions. Subsequent data releases by the Social Security Administration have led the Society of Actuaries to develop a further update to recommended mortality assumptions. Adopting the society's new MP-2015 standard would result in a moderate reduction to the current reported liability.
- 2 Of the \$18 billion total debt that Detroit claimed in its bankruptcy filing in 2013, approximately \$7.4 billion, or 40 percent, could be attributed to underfunded pension liabilities of \$3.1 billion (for the general retirement plan and public safety plan combined) plus retiree health care benefits—OPEB liabilities—totaling \$4.3 billion. "Oral Opinion on the Record in re City of Detroit," Bankruptcy Judge Steven Rhodes (Nov. 7, 2014), <https://www.mied.uscourts.gov/PDFFiles/DBOralOpinion.pdf>.
- 3 The POA's original 2024 contribution estimate of \$111 million was based on the actuarial projections available at that time and using the level principal funding policy. Based on revised analysis using updated mortality assumptions, that figure jumped to nearly \$194 million immediately after adoption of the POA, and the most recent 2016 valuations produced by the city's actuaries using the level principal funding policy estimate the 2024 payment for the legacy plans to be more than \$248 million from general funds alone.
- 4 Original POA 2024 contribution estimates were developed using an actuarial funding policy called level principal. Using this method, Detroit's annual actuarially determined contributions between the transition financing period (2015-23) total approximately \$1.49 million (net of contributions from other sources), according to Pew's projections using financial simulation models for the city's pension plans; the total projected trust fund amount of \$377 million is less than a third of this amount.
- 5 See Investment Powers of the Board and the Investment Committee and Investment Management Sections 15.1 and 15.2 of the GRS combined plan document and Sections 16.1 and 16.2 of the PFRS combined plan document. [http://www.rscd.org/Portals/0/Documents/COMBINED%20PLAN%20\\_%20General%20Retirement%20Systems.pdf](http://www.rscd.org/Portals/0/Documents/COMBINED%20PLAN%20_%20General%20Retirement%20Systems.pdf) and [http://www.pfrsdetroit.org/Portals/PFRS2/Documents/EM\\_Order\\_PFRS\\_Combined\\_Plan.pdf](http://www.pfrsdetroit.org/Portals/PFRS2/Documents/EM_Order_PFRS_Combined_Plan.pdf).
- 6 Semoon Chang, "A Tale of the Prichard (AL) Pension Program," *Pensions: An International Journal* 17, no. 2 (2012): 112-120, <https://link.springer.com/article/10.1057/pm.2012.11>.
- 7 United States Bankruptcy Court, Eastern District of Michigan, Eighth Amended Plan for the Adjustment of Debts to the City of Detroit (Oct. 22, 2014), Exhibit II.B.3.q.ii.A and Exhibit II.B.3.r.ii.A.
- 8 See appendix for further explanation of closed and open plan funding methods.
- 9 Appendix A.2 includes more information about reductions to benefits that were earned before adoption of the POA.
- 10 Plante Moran, "Audited Financial Statements for the General Retirement System and Police and Fire Retirement System for June 30, 2014," Note 9: "Impact of Bankruptcy on City's Total Pension Liability and the Net Pension Liability."
- 11 Estimate per graph on slide 10 in "City of Detroit, Plan for the Adjustment of Debts: Summary Discussion Document," presented by the emergency manager Kevin Orr to the Michigan House of Delegates (May 13, 2014), <http://www.detroitmi.gov/Portals/0/docs/EM/Announcements/POA%20summary-House%20presentation.pdf>.
- 12 United States Bankruptcy Court, Eastern District of Michigan, Eighth Amended Plan for the Adjustment of Debts to the City of Detroit (Oct. 22, 2014), Exhibit II.B.3.s.ii.A., Detroit General VEBA.
- 13 A more detailed comparison of Detroit's pension benefits before and after bankruptcy is available in Appendix A.3 and A.4.
- 14 Contribution agreements for charitable foundations extend beyond 2024.
- 15 Nathan Bomey and Matt Helms, "City's Bankruptcy Attorney: 'Detroit Won't Recover Without Grand Bargain,'" *The Detroit Free Press*, Sept. 2, 2014, <http://www.freep.com/story/news/local/michigan/detroit/2014/09/02/creditors-keep-mediation-secrets-quiet-in-detroit-bankruptcy-testimony/14965843/>. More information on the grand bargain negotiations in Nathan Bomey, *Detroit Resurrected: To Bankruptcy and Back* (New York: W.W. Norton & Co., 2016).
- 16 Approximation produced by financial simulation models for the legacy pension plans created by The Terry Group for Pew, using the POA's funding policy: a 30-year, level principal amortization schedule, assuming a 6.75 percent rate for investment returns.
- 17 As noted in the "FRC Biannual Report No. 2 on the City of Detroit" (Nov. 24, 2015), pp. 2-3, "the amount projected to be paid by the City's General Fund in fiscal year 2024 was estimated to be \$111.0 million. In years after 2024, the annual amount payable decreases by about \$2 million per year. During November 2015, Gabriel Roeder Smith, the actuary for each of the Systems, issued a new actuarial report for each of the Systems (the Gabriel Roeder Reports). The amount projected to be paid by the City's General Fund in fiscal year 2024 in the Gabriel Roeder Reports was increased from the City's plan of adjustment (POA) projection of \$111.0 million to \$194.4 million." This was based on higher estimates included in the revised actuarial estimates for 2014 produced by Gabriel Roeder Smith and the 2015 actuarial valuations for both of the legacy plans.

- 18 See Investment Powers of the Board and the Investment Committee Section 15.1 and Investment Management Section 15.2, Item (1)(d) of the GRS combined plan document and Sections 16.1 and 16.2(1)(d) of the PFRS combined plan document included in the POA.
- 19 Sections 1.19 and 1.21 of the GRS and PFRS Plan Documents, respectively, state that, as of the effective date of the POA, the investment committees are created for the purpose of making recommendations to the Board of Trustees with respect to certain investment management matters relating to the retirement systems and will remain in effect for a period of “not less than twenty years following the date of confirmation of the Plan of Adjustment.”
- 20 At the time that POA negotiations and agreements were put into place, actuarial estimates used to project the city’s 2024 contribution were based on a conservative actuarial funding method called level principal, in which contributions are initially set a higher level than most standard practices and decline over time. Our analysis in the sections ahead incorporates this approach, as well as analysis of a level-dollar funding policy that is proposed in the city’s trust fund plan, an actuarial method that we find is more commonly used for closed pension plans in other jurisdictions.
- 21 According to the Financial Review Commission’s biannual report (Nov. 24, 2015), “the POA projections were based on year 2000 static mortality tables. After Gabriel Roeder performed a mortality study for each System for the years 2008-2013, which studies were concluded in early 2015, each System changed its mortality tables from year 2000 static mortality tables to fully generational 2014 mortality tables.” Additionally, the POA’s original 2024 contribution estimate of \$111 million was based on the actuarial projections available at that time and using the level principal funding policy. Based on revised analysis using updated mortality assumptions, that figure jumped to nearly \$194 million immediately after adoption of the POA, and the most recent valuations produced by the retirement systems’ actuaries using the level principal funding policy estimate the 2024 payment to be more than \$200 million from general funds alone.
- 22 Note that these figures are based on the data and information from the 2016 actuarial valuation reports for the GRS and PFRS Component II Plans, the latest publicly released valuation data for Detroit’s pensions. In addition, the projections through 2024 assume that investment returns and other plan assumptions hold.
- 23 See Appendix A.6 and A.7 for details.
- 24 Based on information presented by city officials to the Financial Review Commission (FRC) on the funding strategy for legacy pension obligations in February 2017.
- 25 Definitions of various funding approaches commonly used to meet unfunded pension costs can be found in Appendix A.9.
- 26 See GRS combined plan document Sec. E-19 (1) Pension Liabilities b. “The City’s annual contribution to finance any unfunded accrued pension liabilities, expressed as a percentage of active employees’ compensation, shall be determined by amortizing such unfunded accrued pension liabilities as a level percentage of such compensation over a period or periods of future years as established by the Board and approved by the investment committee.”
- 27 See PFRS combined plan document Sec. G-16 (c). “The City’s annual contribution, expressed as a percent of active Member compensation, to finance any unfunded Accrued Service Pension liabilities, including instances in which assets exceed liabilities, shall be determined by dividing such unfunded Accrued Service Pension liabilities by one percent (1%) of the present value of future compensation payable during a period of future years. Such period of future years shall be thirty years for the actuarial valuation as of June 30, 1974, decreasing one (1) year at each subsequent June 30th until a twenty year period is reached, which twenty year period shall be used in each subsequent actuarial valuation until June 30th, 2004, when the period shall again be thirty years.”
- 28 Note on stress testing: the importance of monitoring and evaluating fiscal sustainability under a variety of economic scenarios. To demonstrate the need for rigorous stress testing of projections, Pew examined both the forecasts and the actual returns for the legacy plans for fiscal 2016. GRS assets earned 1.4 percent and PFRS returns were 2.5 percent that year, both well below the assumed 6.75 percent returns. This performance was consistent with overall returns among state and local pension plans but meant that the projected 2024 funding gap would be about \$40 million greater than if the returns matched the target. Taking actual 2016 returns into account increased the \$143 million projected 2024 contribution initially presented by the city actuaries by \$24 million to \$167 million. Additionally, our analysis, which not only takes into account 2016 actual returns and the latest available valuation data, shows an increased likelihood that GRS will need to transition to pay-as-you-go funding, even if expected returns are achieved. Note that future returns in fiscal 2017 or later years could exceed the expected rate of return and lower projected future payments.
- 29 In addition to the cost-sharing mechanisms detailed above, liabilities in the Component I plans are reduced as a whole compared with the legacy plans. Component I plans no longer directly provide retiree health care benefits, essentially eliminating any OPEB liability. The discount rate is fixed at 6.75 percent through fiscal 2023, and the Component I plans include the cost-sharing features described in this section, which provide for some risk sharing. The restructured plans also include the creation of various supplemental funding sources, including the Rate Stabilization Fund, Pension Accumulation Fund, Medical Benefits Account Fund, Expense Fund, and Income Fund, all of which can be utilized to provide auxiliary funding to the plans in the event that funding levels decline to under 100 percent—80 percent for the GRS plan or under 90 percent for the PFRS Hybrid Plan.
- 30 See Appendix A.3 and A.4 for detail on new plan benefits in comparison to legacy plans.

- 31 GRS combined plan document, Section 9.5, Fiscal Responsibility: Benefit Reductions and Increased Funding Obligations Combined Plan for the General Retirement System of the City of Detroit, Michigan, and PFRS combined plan document for the Police and Fire Retirement System of the City of Detroit, Michigan, Amendment and Restatement Effective July 1, 2014.
- 32 Sections 9.5 in both the GRS and PFRS combined plan documents, titled Fiscal Responsibility: Benefit Reductions and Increased Funding Obligations, provide steps to be implemented once the funding ratios for either the GRS or PFRS new plans fall below certain thresholds “to safeguard the long-term actuarial and financial integrity of the Retirement System
- 33 Pew’s analysis is based on our interpretation of the mechanisms as defined in Section 9.5 of the GRS combined plan document and PFRS combined plan documents; however, clarification of the legislative intent of these risk-sharing features and the manner in which they are intended to be applied may be necessary.
- 34 See PFRS combined plan document, Section 9.5, Fiscal Responsibility: Benefit Reductions and Increased Funding Obligations Item 2: “In the event the funding level of the Retirement System projected over a five year period falls below ninety percent (90%), the following remedial action shall be required in the order set forth below, beginning with the Plan Year following the Plan Year in which such determination is made and continuing until the funding level is projected to be not less than one hundred percent (100%) on a market value basis within the next five years.”
- 35 The Pew Charitable Trusts, “Cost-Sharing Features of State Defined Benefit Pension Plans” (January 2017), [http://www.pewtrusts.org/-/media/assets/2017/01/defined\\_benefit\\_plans\\_report.pdf](http://www.pewtrusts.org/-/media/assets/2017/01/defined_benefit_plans_report.pdf).
- 36 See Tennessee Code Title 8, Chapter 36 Section 8-36-901 for description of the hybrid retirement program. Section 1-36-922 describes the cost-sharing mechanisms and thresholds in the plan. <https://law.justia.com/codes/tennessee/2015/title-8/chapter-36/part-9/section-8-36-922/>
- 37 Tennessee Department of Treasury Consolidated Retirement System, “New Hybrid Plan with Cost Controls,” <http://treasury.tn.gov/tcrs/PDFs/NewHybridPresentation.pdf>
- 38 New Brunswick Regulation 2012-75 under the Pension Benefits Act (O.C. 2012-251). <http://www.gnb.ca/0062/acts/BBR-2012/2012-75.pdf>
- 39 Detroit’s GRS was established in 1938 under the authority of the 1918 Detroit City Charter. The current provisions of the system are set forth in the combined plan for the General Retirement System of the City of Detroit (the combined plan document) as amended and restated effective July 1, 2014, and approved by the United States Bankruptcy Court for the Eastern District of Michigan as part of the POA. This combined plan document replaced in its entirety Chapter 47 of the Detroit City Code as in effect on June 30, 2014, and incorporates the provisions of the GRS investment committee term sheet as contained within the POA. All previously adopted resolutions and policies of the board of trustees of the system that were inconsistent with the provisions of the combined plan were also repealed to the extent of such inconsistency. The GRS is a governmental plan under Section 414(d) of the Internal Revenue Code and is a qualified plan and trust pursuant to applicable provisions of the Internal Revenue Code. The investment of plan assets is governed by the provisions of the combined plan and the Public Employee Retirement System Investment Act (Michigan Public Act 314 of 1965, as amended; MCL §38.1132 et seq.). Additionally, for the PFRS, the investment committee is responsible for the development of the investment strategies and goals. It is charged with the selection and removal of the chief investment officer and investment managers under the terms of the certified plan of adjustment for the City of Detroit and the “grand bargain” legislation, specifically Public Act 185 of 2014 and new combined plan documents, amended and restated effective July 1, 2014, and approved by the United States Bankruptcy Court for the Eastern District of Michigan as part of the plan for the adjustment of debts of the city of Detroit.
- 40 Kristen Finney-Cooke, et al., NEPC LLC, “General Retirement System of the City of Detroit: Assets Liability Study” (Aug. 18, 2015), page 12.
- 41 *Ibid.*, page 2.
- 42 See PFRS combined plan document, Section 9.5, Fiscal Responsibility: Benefit Reductions and Increased Funding Obligations Item (2): “In the event the funding level of the Retirement System projected over a five year period falls below ninety percent (90%), the following remedial action shall be required in the order set forth below, beginning with the Plan Year following the Plan Year in which such determination is made and continuing until the funding level is projected to be not less than one hundred percent (100%) on a market value basis within the next five years.”
- 43 “Oral Opinion on the Record In Re City of Detroit Bankruptcy,” Judge Steven Rhodes (Nov. 7, 2014), page 14, <https://www.mied.uscourts.gov/PDFFiles/DBOralOpinion.pdf>.
- 44 From the Financial Review Commission’s biannual report on Detroit (Nov. 24, 2015): “The POA projections were based on year 2000 static mortality tables. After Gabriel Roeder performed a mortality study for each System for the years 2008–2013, which studies were concluded in early 2015, each System changed its mortality tables from year 2000 static mortality tables to fully generational 2014 mortality tables.”

- 45 Prichard, Alabama, filed for bankruptcy in 1999 and again in 2009 when the pension fund ran out of money. A U.S. Bankruptcy Court judge dismissed the second filing, and retirees sued the city for defaulting on pension payments during the period between filings, from 1999 to 2011. The city and retirees reached an agreement for a schedule of reduced benefit payments in May 2011.
- 46 National Association of State Retirement Administrators, "State Info, Oregon," accessed September 2016, <http://www.nasra.org/or>.
- 47 Oregon PERS, "Impact of Strunk Ruling," accessed October 2017, <http://www.oregon.gov/PERS/Documents/Financials/Actuarial/2005/Impact-of-Strunk-Ruling.pdf>.
- 48 The Pew Charitable Trusts, "Cost-Sharing Features of State Defined Benefit Pension Plans."
- 49 New Brunswick Regulation 2012-75 under the Pension Benefits Act (O.C. 2012-251).
- 50 Presentation by the government of New Brunswick's task force on protecting pensions, "Shared Risk Pensions: A New Model for New Brunswick," <http://www2.gnb.ca/content/gnb/en/corporate/promo/pension.html>.





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