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April 24, 2020

Joseph G. Costello
Chief Financial Officer
Dallas Area Rapid Transit
1401 Pacific Avenue
Dallas, Texas 75202

Dear Mr. Costello,

CBIZ Investment Advisory Services, LLC (“CBIZ IAS”) was commissioned to review the appropriateness and adequacy of the Dallas Area Rapid Transit Retirement Plan’s investment practices and activities as laid out in Texas Government Code Section 802.109. The terms are per the hourly charges with our existing investment consulting contract with Dallas Area Rapid Transit (“DART”). CBIZ IAS qualifies as an independent consultant as we do not have discretionary management over any of the plan assets and we have significant institutional investment experience. The service team producing this report averages approximately 20 years industry experience. CBIZ IAS is listed in the 2019 Pension and Investments Consultant ranking in the top 50 largest institutional consulting firms, Plan Adviser’s 2019 Top 100 Retirement Plan Advisers, and the Baron’s 2020 Top 50 Institutional Consultant Teams.

In reviewing the Code and the recommendations by the Texas Pension Review Board, the scope of our report requires an evaluation of certain investment duties and responsibilities. To make this determination, we have reviewed the following materials:

- Plan investment guidelines (attached in appendix),
- Monthly and quarterly performance reports,
- Asset allocation studies (2016 study attached in appendix),
- Actuarial reports, (attached in appendix),
- Committee meeting minutes,
- Plan document,
- Plan audit,
- Manager search reports,
- Data submitted to the Texas Pension Review Board,
- Third party vendor contracts,
- Consultant research guidelines,

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- Consulting firm's research organizational chart (attached in appendix),
 - Transition management reporting,
 - and securities litigation firm reporting.

Based upon our review of these materials and our working knowledge of the process employed, it is our opinion that the investment practices, governance, and investment activities are consistent with the best practices of public pension plans. The following report is a summary of our review along with certain supporting documents.

Sincerely,



Robert A. Longfield, Jr., CFA
Executive Vice President

Section 1 – Governance

Within this section we analyze the duties to prudently administer the Plan, to prudently delegate responsibilities and to provide personal attention to the Plan. The focus of the review in this section is the Plan documents, Plan investment guidelines, meeting minutes, implementation procedures, committee member backgrounds and committee members' continuing education.

The DART Statement of Investment Objectives and Guidelines were last updated in January of 2020. They are frequently reviewed and have had two additional updates in the last five years. The guidelines cover purpose, objectives and guidelines for the Plan and all external vendors. It further discusses the Committee's expectations for all these parties.


The construction and responsibilities of the Retirement Committee ("Committee") are described in the Plan documents. The Committee consists of two elected employee members who are Plan participants, the CFO, a member of the Board and a member appointed by the President of DART. Members serve 4 year terms and can be reelected or reappointed.

The current Committee members are as follows:

First Name	Last Name	Position	Continuing Education Compliance
Reginald	Moore	Bus Operator	Compliant
Nicole	Fontayne-Bardowell	EVP & Chief Administrative Officer (IT background)	Compliant
Larry	Knott	Mechanic	In Progress (TEXPERS Board Member)
Joseph	Costello	DART CFO	CPA Compliant
Patrick	Kennedy	Planner & Urban Designer also DART Board Member	In Progress (note: there appears to be data missing from the PRB files as Patrick has attended TEXPERS)

Formal Committee meetings occur 6 to 11 times per year. Minutes are taken at each meeting and the minutes are approved and adopted at each subsequent meeting.

Within the corporate structure of DART normal attendance at the Committee meetings include representatives from human resources, treasury, and legal. Additionally, the external investment consultant normally attends along with one different external investment manager at most meetings. The external auditor and actuary normal attend one meeting per year. This allows for the direct implementation of approved actions as well as reporting on the normal course of business. This process provides the Committee the support function needed to carry out their fiduciary responsibilities.



Formal search processes are conducted for actuary, custodian, auditor and investment consultant by DART procurement. These contracts will be taken out for bid regularly. Contracts with external parties generally undergo a public bidding process every three to five years with the exception of custodial services, which is less frequent.

Section 2 – Investment Structure


Within this section we analyze the duties to diversify the Plan assets, invest the assets, establish risk and return expectations, and maintain appropriate liquidity for cash flow needs. The focus of the review of this section is the Plan investment guidelines, current actuarial report, asset allocation study, reallocation updates, Texas Pension Review Board reporting, meeting minutes and recent monthly and quarterly performance reports.

The Plan is a single-employer defined benefit pension plan that was designed to provide retirement, death, and disability benefits to certain employees of DART. Participants of the Plan are those employees who, as of September 30, 1995, were covered under one of three predecessor plans, Dallas Transit System Retirement Plan A, Dallas Transit System Retirement Plan B and Dallas Transit System Employees Retirement Plan. The three predecessor plans were amended, restated, and consolidated into this Plan, effective October 1, 1995. No new employees are eligible to participate in the Plan. The current plan membership as of October 1, 2019 is 1,127 eligible members.

Within the Statement of Investment Objectives and Guidelines, a plan funding philosophy is delineated, liquidity requirements are discussed, and permissible asset allocation ranges, as well as current strategic targets by asset class are defined.

In the asset allocation study approved in early 2016, a schedule was constructed to have a reasonable probability of achieving a fully funded plan by the year 2036. At the time of the study, a new funding target of \$10 million per year was adopted by the Committee and has been agreed to each subsequent year. This \$10 million funding level has been consistently larger than the actuarial required contribution. For example the current annual required contribution is \$6.6 million. At year-end 2019, the expected market value from the original glide path was \$171.3 million. As a result of both overfunding and strong markets, the actual market value at December 31, 2019 was \$192.3 million.

The actuarial expected return assumption is 6.75%. Based on statistics from last year's Texas Pension Review Board plan compilation, only 12% of Texas public plans have an actuarial return assumption at 7% or less. This represents a conservative management philosophy of the Pension Plan by utilizing a lower return expectation. Additionally, per the same study, DART's plan has a 12.8 year effective amortization period which is in the top 25% of Texas public plans. Per the GASB 67 requirements as of October 1, 2019 the net position, as a percentage of total pension liability, is 78.43% per the actuarial report and draft audit. This results in a net pension liability of \$51.0 million per both



reports. To put this unfunded liability into perspective, the DART 2019 operating budget is \$544 million and the total DART budget is in excess of \$1 billion.

The 2016 asset allocation study, begun in the summer of 2015, was adopted in early 2016. Based on the conservative nature of the Committee, policy allocation constraints, and the investment consultants expected return assumptions; a target of 40% fixed income, 39% US equities, 10% international equities, 10% real estate and 1% cash was adopted. The expected 5 year annualized return at that time was projected to be 5.4% within a range of 11.5% to -1%. Though this was below the long term expected actuarial investment return of 6.75% the Committee was comfortable with a lower return expectation over the intermediate term as DART budgeted to fund the Plan at a level above the current actuarial required contribution.

The asset allocation was revisited in 2018 with a few modifications made to the bond portfolio in 2017. The three year investment return projection, based on the investment consultant's outlook, was similar to the previous study at 5.3% annualized. The Committee agreed to continue the current course and not increase risk to increase the probability of achieving the actuarial assumed rate. Plan contributions continued at a level above the required minimum contribution.

As of December 31, 2019, the four year annualized investment return since the initial study has been 7.7%. This represents 2.3% annualized excess return above the original projection and almost 1% above the actuarial expected return. The trailing 10 year investment return as of December 31, 2019 is 7.4% annualized net of investment manager fees. Preliminary results indicate that for March 31, 2020, the four year annualized return will be approximately 4%. March 2020, represents the current month end low point in the current economic downturn.

The following italicized language summarizes the approach taken by the investment consultant towards asset allocation.

Our perspectives and approach to asset allocation is a blend of hard data, theoretical assumptions and common sense powered by technology and supported by more than thirty years of experience. Investment objectives are often generically stated as “maximizing return within acceptable risk parameters.” Our team believes whether the desired return is tied to an actuarial assumption, a spending policy, a fixed hurdle rate or a relative benchmark, the probability of achieving your stated investment objective is driven largely by your portfolio’s strategic (long-term) asset allocation and the tactical (short-intermediate term) adjustments made to your allocation over time. Asset allocation is not merely a statistical exercise in pursuit of “maximized” returns, it is an essential tool for managing volatility and risk. Volatility, the ups and downs of portfolio performance, occurs along the path toward the investment objective, while risk relates to the probability of ultimately achieving that objective.

Our team has worked with clients to help define investment policies and implement asset allocation strategies in pursuit of “maximizing return within acceptable risk

parameters.” That experience has taught us, among other things, the following important points:

- *Investment policies and asset allocation guidelines (e.g. minimum/maximum tactical ranges) are critical in times of heightened volatility,*
- *Asset allocation studies and the statistical models that drive the process are only as sound as their underlying assumptions,*
- *Forward looking relative return relationships among asset classes are more important than simple reliance on past performance,*
- *Unlike Standard Deviation which does not distinguish between upside and downside volatility, Downside Risk measures (e.g. Downside Deviation) get to the heart of what “risk” truly represents – the loss of wealth,*
- *Historical “averages” can be deceiving,*
- *When markets are under stress, the correlations among asset classes often rise – just when the opposite is needed,*
- *Asset class return patterns rarely fit neatly beneath a symmetrical “bell-shaped curve,”*
- *Kurtosis and Skewness are not just for Statistics class, but rather serve as important descriptors of an asset class’ distribution of returns; and,*
- *Technological “disruptions” happen – even in asset allocation -- as new software and improved computing power enhance capabilities and challenge long-held methodologies.*

Two types of meetings bring together our research staff in a formal setting – a “Level 4” meeting, which is the final stage of our investment manager due diligence process, and our Quarterly Asset Allocation Strategy meetings. The purpose of these quarterly allocation meetings is to update, if necessary, our forward-looking total return profiles for both liquid and illiquid asset classes, using a moving 3-year and 10-year horizon, respectively.

We acknowledge that forecasting a specific return number for an asset class is merely an educated guess, so our approach focuses less on the absolute numbers, choosing instead to quantify anticipated relative performance relationships between asset classes. For over two decades our team has researched (theory) and experienced (reality) the numerous known and unknown factors that impact client performance; therefore, we endeavor to keep our analysis and our opinions of the global capital markets informed by three different, yet interdependent perspectives:

- *Current Events*
- *Historical Context*
- *Future Implications*

These three perspectives frame both the pre-meeting research performed by members of the investment staff, as well as provide focus for our group debate on a wide range of fiscal/monetary policy issues and macro-economic factors impacting client portfolio allocations.



In preparation for our Quarterly Asset Allocation Strategy meeting, our investment professionals gather economic and market data from a variety of sources, including but not limited to:

- *Bloomberg*
- *Federal Reserve*
- *FTSE Russell*
- *J.P. Morgan (Guide to the Market)*
- *Media (e.g. Barron's, HedgeWeek, Wall Street Journal, etc.)*
- *Morningstar*
- *MSCI*
- *NAREIT (National Association of Real Estate Investment Trusts)*
- *S&P Global*

In addition to the collection of “hard data” from the sources above, our team meets with a variety of investment professionals (e.g. portfolio managers, directors of research, chief investment officers, etc.) spanning a wide range of asset classes and strategy disciplines.

The Quarterly Asset Allocation Strategy meeting is led by the chair of our Research Advisory Board. As previously stated, Current Events, Historical Context and Future Implications for asset classes and their relative relationships inform our conversations as we examine the drivers of asset class returns.

For example:

- *Risk-free rate/Yield Curve*
- *Economic Data (e.g. inflation, GDP, employment, wage, housing, etc.)*
- *Corporate Earnings*
- *Dividend Yield*
- *Valuations*
- *Credit Spreads*
- *Foreign Currency Exchange Rates*

These and other data inputs allow us to form an opinion regarding anticipated changes to each asset classes true return components: Yield, Price Change and Currency Impact. In addition, we include Expected Manager Excess Return to highlight the varying impact of active management by asset class.

The resulting total return outlook is focused on the following major asset class categories as the essential building blocks for consideration in asset allocation:

Three-year Horizon:

- *U.S. Large Cap Equity*
- *U.S. Small Cap Equity*
- *U.S. Public Real Estate (REITs) | Global REITS*

- *International Developed Market Equity*
- *International Emerging Market Equity*
- *U.S. Core Fixed Income*
- *U.S. High Yield Fixed Income*
- *Cash and Equivalents*
- *International Developed Markets Fixed Income*
- *International Emerging Markets Fixed Income*
- *Directional Hedge Funds*
- *Non-Directional Hedge Funds*

Ten-year Horizon:

- *Private Equity*
- *Private Real Estate*
- *Timber*
- *Private Infrastructure*

In addition to the three-year and ten-year return forecasts for the asset classes listed above, our investment staff also discusses underlying styles or sub-strategies such as Value and Growth for U.S. Large Cap Equity or Core and Value-Add for Private Real Estate. However, for these and other sub-strategies we do not prepare a return forecast, but instead focus on determining a Bullish, Neutral or Bearish sentiment for the next twelve to eighteen months as part of our tactical (short-intermediate term) asset allocation adjustments.

For many years the mean-variance optimization model (“MVO”) of Harry Markowitz has been the “go-to” methodology to demonstrate the ability to trade units of “risk” (standard deviation) for units of “reward” (total return) in a series of optimized portfolio combinations (efficient frontier). While the simplicity of MVO is still useful in communicating the basic tenets of asset allocation, improved methodologies, new software and significantly greater computing power have given the traditional Asset Allocation Study a much-needed upgrade as both financial markets and investment products grow more complex.

For our client asset allocation work, we utilize the latest, cloud-based asset allocation tools developed for Morningstar Direct. In addition to traditional MVO, Morningstar Direct provides liability-driven optimization, and includes multiple models to develop and test capital market input assumptions (return, volatility, correlation), including Monte Carlo Simulation, Black-Litterman, CAPM and historical analysis. The following also represents important enhancements to Morningstar Direct’s asset allocation capabilities:

- *Use of scenario-based analysis to allow for the depiction of “fat-tailed” distributions rather than assuming all asset class returns are normally (equally) distributed on both sides of their average return (“bell-shaped” curve).*
- *Single period returns can be replaced with the long-term forward looking geometric mean, thus accounting for the accumulation of wealth.*

- *Substituting conditional value-at-risk (“CVaR”) or another risk measure for standard deviation.*
- *Using scenario-based analysis rather than correlation.*
- *Modeling the impact of inflation, return expectations and cash flows (including any specific liabilities) on portfolio total fund values.*

In summary, both our perspectives and approach to asset allocation keep CBIZ IAS grounded in the reality that our process is a blend of hard data, theoretical assumptions and common sense powered by new technology and supported by over thirty years of experience.

The recent CBIZ quarterly asset allocation strategy meeting in April produced the following annualized investment performance outlook by asset class. It is listed below for the asset classes used by DART:


Large Cap US Equity	8.0%
Small Cap US Equity	8.5%
International Equity	8.5%
Core US Bonds	2.7%
International Bonds	1.2%
Emerging Market Debt	6.8%
High Yield Bonds	8.0%
Private Real Estate	9.0%
(Value add & Core Plus)	
Cash	0.7%

From these current expected returns the total fund three year weighted average expected return is 6.5%.

The pension plan has net cash outflow. Liquidity is maintained with 1% to 2% in cash in most periods. Additionally, 89% of the portfolio has daily liquidity. Only 2.8% of the portfolio is invested in long term illiquid partnerships. This allows the portfolio to remain close to fully invested while still meeting Plan cash flow needs. Macro outlook is discussed with the investment consultant at all meetings in which they are in attendance. These discussion can lead to small tactical shifts away from the target asset mix allocations. These shifts in allocation are most often implemented in conjunction with cash flow events such as investment distributions, benefit payments and the annual contribution.

Section 3 – Asset Allocation Implementation/Manager Search and Selection

Within this section we analyze the Plan governance duties to investigate asset classes and managers, prudently select investment managers, and incur reasonable expenses. The focus of the review for this section is the plan investment guidelines, asset allocation



study, current asset allocation, meeting minutes, investment consultant research guidelines, consultant research organizational chart, recent investment manager search documents, manager contracts, and quarterly performance reports.

DART retains CBIZ IAS to assist with the manager search and selection process within the Plan's investment guidelines. CBIZ IAS has a research team of over 20 internal individuals plus external resources to focus on manager research. Additionally, CBIZ IAS has formal research guidelines, research organization structure, and formal research meetings.

In implementing asset allocation changes or manager replacements the Committee will instruct the investment consultant to begin a search. Any special criteria is discussed and the consulting firm will present a full report with a short list of firms that best meet the criteria. The basic process for traditional searches performed by the consulting firm is described below in italics.


The Research Advisory Board (RAB) directs and oversees the research process. The goal of the RAB is to “Guide Better Investment Decisions” by providing guidance and general oversight to the various research activities performed within the firm. In addition to the oversight function, the RAB assists in the analysis of existing and new managers. This process serves as a basic outline, but due to client specific factors, not all managers are subjected to the RAB four step process.

I. Manager Sourcing | Initial Screening – Level I of the Research Advisory Board (RAB) process is comprised of a series of quantitative screens designed to be a straightforward, objective, ranking in which a manager is scored on three criteria over multiple time periods along with certain minimum pass fail criteria to be included in the review. Each measurement criteria for each period is scored. To move into the next phase of the due diligence process, a managers consolidated score must rank in the top third of the category of the managers reviewed.

II. Initial Review – Managers who have passed Level I are evaluated and those with the most attractive profile are prioritized for further evaluation. Once a strategy is given priority status, the search group creates a report incorporating information and analysis on the firm and strategy. Upon analysis of the information, a determination is made by the RAB as to whether the manager moves to the final stage of the due diligence process.

III. On-site | In-depth Evaluation – The Level III process is qualitative and subjective in nature. Typically, a visit is made to the investment manager's office for an in-depth due diligence review. The due diligence report is reviewed by the research director and a decision is made regarding the investment team's invitation to visit our offices.

IV. Final Approval Process – The final step, Level IV, is a firm-wide meeting in which the key investment professionals of the strategy under consideration discuss their firm, investment process and philosophy. Upon conclusion of the meeting, the presenters are



dismissed and the employees in attendance discuss their opinions, pro and con, with a final vote taken as to whether the manager meets the requirements for approval.

In addition to our RAB four step process, we use a combination approach to balancing our internal research resources with complimentary external research resources. Our team believes that there is no substitute for performing proprietary due diligence on the managers that we consider for inclusion in our clients' portfolios. Our Research Advisory Board and Investment Committee are comprised of experienced research and investment professionals who perform initial and ongoing due diligence on hundreds of managers across the full spectrum of both traditional and alternative strategies. In addition to our own robust due diligence process, we have agreements in place to access due diligence provided by certain third party firms including Envestnet|PMC and Morningstar. We believe that the additional due diligence these firms provide is a meaningful complement to our own proprietary research.

The above process is similar for mutual funds utilized in a defined contribution plan or large separate account allocations used in a defined benefit plan or endowment. Furthermore, we will apply various quantitative scoring for passive funds as well. As not all passive options are created equal and issues such as fee, tracking error and size can be vitally important.


The specific consultants have limited latitude around the above process. It should be noted that not all managers have to go through the above process of obtaining firm wide approval to be recommended to a client. However, all managers must pass level one screens or an exception provided by the appropriate CBIZ IAS research committee to be recommended. This allows for the service team to fully customize a search for a specific client.

Search documents include fee schedules for each candidate. If a commingled fund is being considered, advanced discussions occur to list the lowest fee class possible in which DART may invest. For separate account allocations fee schedules are reviewed versus listed fee schedules and the investment consultant will attempt to negotiate a lower rate, if possible. Passive products are utilized and fees were also compared as a factor in determining the selection.

Contracts for all third party vendors, including the consultant, custodian, and money managers are reviewed by DART legal. For more complex contracts, such as private partnerships, the DART legal team may use outside counsel to review documents before recommending them for signature. When possible DART will negotiate certain provisions that they determine to be significant.

Section 4 – Monitoring Compliance

Within this section we analyze the duties to monitor compliance with investment policies and guidelines and to review appropriate valuation methodologies. The focus of the review of this section is the Plan investment guidelines, meeting minutes, consultant



contract, custodial contract, transition management documents, securities litigation reports, partnership audits and monthly and quarterly performance reports.


Foster & Foster is the current actuary and performs an annual study for the Committee. The Plan is also audited annually. The current auditor is Crowe, LP. The latest audit provides an unqualified opinion of the plans net position for the years ending September 30, 2019, and 2018.

The investment consultant provides detailed quarterly reports and abbreviated monthly reporting that corresponds with client meetings. The reports are designed to tie in all of the Plan investment guideline metrics. The metrics in the quarterly reporting include a review of compliance to asset allocation ranges, performance versus listed benchmarks, total fund performance versus goals, peer group rankings by investment manager and by fund, sector concentration, security concentration, country exposure, and credit quality detail. Performance is presented net of investment manager fees. The investment performance reporting system used by the investment consultant is InvestorForce. A broadly utilized institutional performance reporting software system.

Custody services are through Northern Trust. Northern Trust is broadly considered by the investment consultant as one of the top institutional custody platforms. The custodian provides on-line access for daily monitoring and full settlement capabilities. Northern Trust also purchases utilized mutual funds as directed by DART. Northern Trust assists with processing class action claims and will provide transition management services when separate account managers are being replaced. The most recent transition occurred in February of 2020, where the transition services were utilized and pre and post trade reporting was provided. Full reporting includes both explicit and implicit commission costs in the analysis of the transition management services. Furthermore, Northern Trust provides commission analysis on equity separate account firms on an on-going basis.

DART uses multiple securities litigation firms to monitor and work with their custodian, if needed, to process or pursue any claims. At the size of the DART pension plan, it is unusual for DART to be a lead plaintiff but the process appears to be actively monitored across asset classes. Should a significant event occur, DART's legal team is involved. This was most recently confirmed with the depth of involvement by all parties involved in filing the GSE Bonds Antitrust Litigation that was filed in March of 2020.

Valuations for liquid securities are reported by the custodian, Northern Trust, through commonly used pricing services. DART has four allocations to private partnership vehicles. All four are private real estate funds and are operated by registered investment advisors with the SEC. Two are open ended funds that have liquidation provisions and quarterly NAVs. Both open ended funds are stated at fair value and are reviewed and adjusted quarterly. Valuations are based on appraisal reports prepared by independent third party appraisers, reviewed and approved by the real estate firms' management. KPMG confirmed in their audit of one of the open ended funds that all appraisal reports are completed in accordance with currently published Uniform Standards of Professional Appraisal Practice, as promulgated by the Appraisal Foundation. PWC



confirmed in their audit that the other open ended fund does have independent third party audits performed quarterly. The other two investments are closed end funds. They are different vintage years offered by the same real estate firm. The management firm that manages the investments of the closed ended funds does have external appraisals performed on all properties after they have been held for twelve months. All four produce an annual audit. The auditors utilized are KPMG, CohnReznick and PWC.

Section 5 – Recommendations

Based on the above review, two recommendations are presented for consideration.

- With the current market dislocation, and the last full asset allocation review, including funding path analysis, finalized in 2016, we would recommend an updated asset allocation study to be performed within the next year.
- Though stated manager fees are negotiated for improvement where possible and represent a factor during the manager selection process, the monitoring of those fees is less robust once the manager is hired. We would recommend that benchmarking data be added into the quarterly report to compare the existing fees where applicable with industry averages for the respective investment categories.

Important Disclosures

Rankings/recognition by unaffiliated rating services/publications should not be construed as a guarantee of a certain level of results or qualifications related to CBIZ Investment Advisory Services, LLC and its related entities. Rankings published by media sources are generally based on information prepared by the recognized advisor.

Information is provided to us by custodians, administrators, investment advisors, unregistered money managers and/or other sources as applicable. While the information from third party sources is believed to be reliable, it is not warranted to be accurate, complete or timely. We analyze transactions reflected in the custodian and/or administrator statements as well as review the annual audited market values of the portfolio. This provides us with a reasonable basis, not absolute, that the investment information presented is free from a significant misstatement. We believe that our method of evaluating and measuring performance results referenced herein provides us a reasonable basis for our observations and recommendations. Past investment performance is not indicative of future results.

Appendix

**DALLAS AREA RAPID TRANSIT
EMPLOYEES DEFINED BENEFIT RETIREMENT PLAN**

**STATEMENT OF INVESTMENT
OBJECTIVES AND GUIDELINES**

**AUGUST 2010 AMENDED
APRIL 2012 AMENDED
JULY 2016 AMENDED
January 2020**

OVERVIEW

- | | |
|---------------------|--|
| 1. Address: | Dallas Area Rapid Transit
Defined Benefit Retirement Plan
1401 Pacific Avenue
Dallas, TX 75266
Tel. (214) 749-3239
Facsimile: (214)749-3036 |
| 2. Primary Contact: | Philip Perez, Director of Benefits |
| 3. Plan Sponsor | Dallas Area Rapid Transit |
| 4. Actuary | Foster and Foster |
| 5. Consultant | CBIZ, IAS |
| 6. Attorney | Peter Brannan |
| 7. Custodian | Northern Trust |
| 8. Auditor | Crowe Horwath LLP |
| 9. Tax ID Number | 75-1813169 |
| 10. System Year End | September 30 th |

All updates to the above positions and providers listed in the Overview are considered an update to this document on the date the committee makes the change regardless of when the document is formally updated.

Purpose

The purpose of this Statement of Investment Objectives and Guidelines is to assist the Dallas Area Rapid Transit Retirement Committee (hereafter referred to as the Committee) in more effectively supervising and monitoring the investment of the Fund's assets.

In the various sections of this policy document, the Committee defines its investment program by:

- Stating in a written document the Committee's attitudes, expectations and objectives in the investment of Fund assets.
- Setting forth an investment "structure" for managing assets. This structure includes various asset classes and investment management styles that, in aggregate, are expected to produce a prudent level of diversification and investment return over time.
- Providing guidelines for each investment portfolio that control the level of risk assumed in the portfolio and ensure that assets are managed in accordance with stated objectives.
- Encouraging criteria to monitor and evaluate the performance results achieved by the investment managers.

This Statement represents the Committee's current philosophy regarding the investment of Fund assets. In addition, although the Committee shall utilize this Policy Statement in making decisions concerning the Fund, it shall not necessarily be bound solely by its contents.

Funding Philosophy

The Committee's funding objective for the Plan is to be as fully funded as prudently possible so that:

- The ability to pay all benefit and expense obligations from the Plan when due is ensured.
- There will be no long term principal erosion of contributed funds or the purchasing power thereof.
- The Plan's assets should attempt to earn a sufficient total rate of return over time to reduce the Plan's dependency on contributions to meet all benefit and expense obligations.

Investment results within the plan are considered to be the major critical element in achieving these funding objectives stated above while reliance on contributions is a secondary element.

Liquidity Posture

Liquidity considerations are low in the short-term and intermediate-term resulting in an immaterial impact upon investment policy, objectives and guidelines.

Investment Management Structure

The Committee has reviewed the investment program for the DART Employees Defined Benefit Retirement Plan. The result of the review is an updated, long-term strategic asset allocation plan.

The review included projections that were based on long-term capital market behavior and the Plan's financial and demographic characteristics. The financial implications of a wide range of investment alternatives (conservative to aggressive) were evaluated over various time frames. The key decisions focused on balancing the rewards of normal market behavior against the risks of poor market behavior over a long-term period.

Five distinct asset classes were included in the portfolio:

- Broad Domestic Equity
- International Equities
- Global Bonds
- Real Estate
- Cash

Return, risk and diversification assumptions were established for each, and efficient portfolios were identified. As a result, permanent commitments to the asset classes listed on the next page will be made to ensure diversification at the Plan level.

It is not the intention of the Committee to become involved in day-to-day investment decisions. Therefore, the assets will be allocated to professional investment managers in a manner consistent with the Policy's objectives. The guidelines for the allocation of assets to investment managers in an asset mix is as follows:

	Lower Limit	Target	Upper Limit
U.S. Market Equities	30%	39%	50%
International Equities	0%	10%	20%
Global Fixed Income	30%	40%	50%
Real Estate	0%	10%	15%
Cash Equivalents	0%	1%	5%
Alternatives	0%	0%	10%

Because the asset classes do not move in concert, deviations from the normal commitments will occur through normal market activity. The Upper and Lower Limits define the ranges within which market activity will be allowed to shift the allocations. The ranges are designed to allow for a reasonable period of time to elapse before rebalancing the portfolio. Should actual allocations depart from the prescribed ranges, assets will be moved from the over-allocated to the under-allocated. It is the intention of the Committee to review this document at least bi-annually.

When in market equilibrium cash flows will be deployed in a manner that returns the portfolio to its target commitments.

Real Estate

The real estate portfolio should include exposure to the four major segments of the real estate market: apartments, light industrial, retail, and office buildings. Diversification should also be made between property type, economic and geographic location. The Investment Manager's goal is as follows:

- To exceed the return (net of fees) of the appropriate indices (e.g. NACREIF, NAREIT, etc.).
- To exceed the median return of a universe of other real estate managers.
- Commingled funds are permitted as long as the foregoing guidelines apply.
- For the purposes of asset allocation, timber, agriculture, and infrastructure investments are considered real estate.

While the results will be regularly monitored by the Investment Consultant with the discussion and direction of the Committee, the primary focus will be over a rolling five and seven-year period.

Alternatives

The alternatives managers are charged with the responsibility of adding diversification to the overall portfolio. Examples include private equity and hedge funds.

Specifically, they are required to do the following:

1. To exceed the return (net of fees) of the appropriate indices (e.g. HFR Hedge Fund of Funds, etc.).
2. Commingled funds are permitted as long as the foregoing guidelines apply.

While the alternatives program will be continually monitored by the Investment Committee with the advice and guidance of the Investment Consultant, the primary focus will vary depending on liquidity and investment time horizon of the specific investment vehicle.

Diversity

It is a goal of the Committee to increase its utilization of minority- and female-owned service providers (excluding Plan asset investors) only when those service providers offer products or

services equal to or greater than other service providers. The Committee will continue its policy of including for its consideration, when available, minority- and female-owned investment management firms to invest Plan assets.

For purposes of this policy, a minority- or female-owned firm shall be defined as an organization that is majority-owned by one, or any combination of the following groups: African American, Native American, Hispanic American, Asian American or females. For investment managers, the firm must also be a U.S. Domiciled registered investment advisor under the Investment Advisors Act of 1940.

All efforts will be consistent with DART's investment objectives and goals and will be consistent with the Committee's fiduciary duty.

Investment Return Objectives

In formulating investment return objectives for the Plan assets, the Committee placed primary emphasis on the following goals:

- Achieve investment performance that exceeds the rate of inflation over time thereby providing a real rate of return.
- Achieve investment results of at least the actuarial rate of return.
- Achieve investment performance that is above average when compared to:
 - Other investment managers
 - Other investment manager peers of related investment style
 - Other public retirement plans
 - A mix of capital market indices

1. Total Plan Return Objectives

- The Total Plan should rank in the upper half (50th percentile) compared to a universe of public fund peers over a minimum of five (5) years.
- The Total Plan's overall annualized total return for each asset class should rank in the upper half (50th percentile) compared to investment style peers over a minimum of five (5) years.
- The Total Plan's overall annualized total return (which is defined as all price changes plus all income and/or dividends) should exceed the actuarial assumption over a rolling five-year period.
- The Total Plan's overall annualized total return should exceed the returns that would have been achieved if the Plan had been fully invested in a combination of the following indices at the Plan's policy targets over a minimum of five (5) years.
 - Russell 3000
 - Bloomberg Barclays Global Aggregate Index
 - Morgan Stanley Capital International (MSCI) All Country World ex-U.S. Index
 - NCREIF ODCE Index
 - 90-Day T-Bills

2. Equity Segment Return Objectives

A. The following minimum performance goals have been established for the Total Plan's domestic equity segment:

- The domestic equity segment's total return should perform at least at the upper half (50th percentile) compared to a universe of public fund U.S. equity returns measured over a minimum period of five (5) years.
- The individual domestic equity managers' total return should perform at least at the upper half (50th percentile) compared to investment style peers as measured over a minimum period of five (5) years.
- The domestic equity segment's total return should exceed the total return of the Russell 3000 Index measured over a minimum period of (5) years.

B. The following minimum performance goals have been established for the Plan's international equity segment:

- The international equity segment's total return should perform at least at the upper half (50th percentile) compared to a universe of public fund Non-U.S. equity returns measured over a minimum period of five (5) years
- The individual international equity manager's total return should perform at least at

the upper half (50th percentile) compared to the investment style peers as measured over a minimum period of five (5) years.

- The international equity segment total return should exceed the total return of the Morgan Stanley Capital International All Country World ex-U.S. Index over a minimum of five (5) years.

3. Fixed Income Segment Return Objectives

The following minimum performance goals have been established for the Plan's global fixed-income segment:

- The global fixed-income segment's total return should perform at least at the upper half (50th percentile) compared to a universe of public fund fixed income returns as measured over a minimum period of five (5) years.
- The individual global fixed income manager's total return should perform at least at the upper half (50th percentile) compared to investment style peers over a minimum period of five (5) years.
- The global fixed income segment's total returns should exceed the total return of the appropriate Barclays Bond Index over a minimum period of five (5) years.

4. Cash and Equivalents Segment Objectives

- The total cash and equivalents return should exceed the total return of 90-Day T-Bills over a period of five (5) years.

Responsibilities of the Custodian Bank

In order to maximize the Fund's return, no money should be allowed to remain idle. Dividends, interest, proceeds from sales, new contributions and all other monies are to be invested or reinvested promptly. If funds are not reinvested, then they will be placed in money market instruments or a money market fund immediately by the designated case manager working in concert with the custodian.

The designated case manager will be responsible for coordinating with the various specialist investment managers and the custodian to ensure that adequate levels of liquid reserves are available to settle all pending transactions.

The custodian will be responsible for performing the following functions:

- Accept daily instructions from the investment managers;
- Advise investment managers daily of changes in cash equivalent balances;
- Immediately advise investment managers of additions or withdrawals from their account;
- Notify investment managers of tenders, rights, fractional shares or other dispositions of holdings;
- Resolve any problems that investment managers may have relating to custodial account;
- Safekeeping of securities;
- Interest and dividend collection;
- Daily cash sweep of idle principal and income cash balance;
- Process all investment manager transactions;
- Collect proceeds from maturing securities;
- Provide monthly statements by investment manager account and a consolidated statement of all assets;
- Provide a dedicated account representative to assist in all needs relating to the custody and accountability of the Fund's Assets.

Responsibilities of Investment Managers

The duties and responsibilities of each of the registered investment advisors retained by the Committee include:

- Managing the assets under its management in accordance with the policy guidelines and objectives expressed herein, or expressed in a separate written agreement when deviation is deemed prudent and desirable.
- Exercising full investment discretion within the guidelines and objectives stated herein. Such discretion includes decisions to buy, hold or sell securities in amounts and proportions reflective of the manager's current investment strategy and compatible with investment objectives.
- Promptly informing the Committee regarding all significant matters pertaining to the investment of the fund assets, for example:
 - Changes in investment strategy, portfolio structure and market value of managed assets.
 - The manager's progress in meeting the investment objectives set forth in this document, and
 - Significant changes in the ownership, affiliations, organizational structure, financial condition, professional personnel staffing and clientele of the investment management organizations.
- **Initiating written communication with the Committee whenever the investment manager believes that this Statement of Investment Objectives and Guidelines should be altered.** No deviation from guidelines and objectives established in the Statement should occur until after such communication has occurred and the Committee has approved such deviation in writing.
- The Committee formally delegates full authority to each investment manager for exercising all proxy and related actions of the Plan's investment assets assigned to it. Each manager shall promptly vote all proxies and related actions in a manner consistent with the long-term interest of the Plan and its Participants and Beneficiaries. Each investment manager shall keep detailed records of all said voting of proxies and related actions and will comply with all regulatory obligations related thereto and will report annually to the Committee and votes made. The Committee shall annually review each investment manager's policies and actions in this area.
- Each Investment Manager shall utilize the same due care, skill, prudence and diligence under the circumstances then prevailing that experienced, investment professionals acting in a like capacity, as a fiduciary, and fully familiar with such matters would use in like activities for like plans with like aims, while maintaining appropriate diversification to avoid the risks of large losses, in accordance and compliance with all applicable laws, rules and regulations from local, state, federal and international political entities as it pertains to fiduciary duties and responsibilities.

- Acknowledging in writing to the Committee the investment manager's intention to comply with the Statement of Investment Objectives and Guidelines as it currently exists or as modified in the future.
- Submitting to the Committee (and its designated consultants) exhibits, written material, etc. that will be used during periodic meetings with the Committee at least ten business days in advance of these meetings. Please refer to Appendix "A" for a description of the reporting requirements.

Evaluation and Review

On a timely basis, but not less than four times a year, the Committee will review actual investment results achieved by each manager (with a perspective toward a five-year time horizon) to determine whether:

- The investment managers performed in adherence to the investment philosophy and policy guidelines set forth herein,
- The investment managers performed satisfactorily when compared with:
 - The objectives set forth in Appendix "A" as a primary consideration,
 - Their own previously stated investment style,
 - Other investment managers, both in asset class and style group,
 - Their respective indices.

In addition to reviewing each investment manager's results, the Committee will re-evaluate, from time to time, its progress in achieving the Total Plan, equity, fixed-income, international and cash and equivalents segment objectives previously outlined. The periodic re-evaluation also will involve an evaluation of the continued appropriateness of: (1) the manager structure set forth in Appendix "A"; (2) the allocation of assets among the managers; and (3) the investment objectives for the Plan's assets.

The Committee may appoint investment consultants to assist in the on-going evaluation process. The consultants selected by the Committee are expected to be familiar with the investment practices of other similar retirement plans and will be responsible for suggesting appropriate changes in the Plan's investment program over time.

APPENDIX A:

FUND SEGMENT AND INDIVIDUAL MANAGER GUIDELINES

DALLAS AREA RAPID TRANSIT

INVESTMENT STRUCTURE

<u>Investment Manager</u>	<u>Target Allocation</u>
U.S. Market Specialist Equity	
Large Cap: 27%	
Smid Cap: 12%	
Broad U.S. Equity:	39%
International Equities	
Non-U.S. Equity: 6%	
Emerging Markets Equity: 4%	
Broad International Equity:	10%
Global Fixed Income	
Core Fixed Income: 19%	
Global Fixed Income: 10%	
Multi-Sector Fixed Income: 10%	
Broad Global Fixed Income:	39%
Real Estate	
Core Plus:	5%
Value Add:	5%
Alternatives	
Hedge Funds and Other Alternative Investments:	0%
Cash	
Cash & Equivalents:	1%
Total	100%

Appendix A: Fund Segment and Individual Manager Guidelines

1. Manager Structure

The Committee will retain investment managers that specialize in the use of particular asset classes. The targeted distribution of Fund assets among specialist managers will be as illustrated on the previous page. The Committee believes that the established structure:

- Is consistent with the practices of other similar-sized retirement funds; and
- Offers an appropriate “blend” of investment styles that will produce a sufficient level of diversification and investment return over time.

2. Cash Flow Allocation

The allocation of assets is consistent with the Committee’s desire to diversify the Plan’s investment management program.

The Committee intends to review on a periodic basis the allocation of assets among its investment managers. To the extent that it is practicable, it is expected that any cash flow will be allocated to or taken from the managers in efforts to maintain the Total Plan’s assets in the target asset allocation outlined previously.

3. Trustees Utilization Restrictions

All Plan assets held in separate accounts, in any form, shall be solely and exclusively; (a) settled at, (b) held in custody at, and (c) safe kept only as custodians designated by the Committee at its sole discretion. The Trustee will be responsible for reporting on all mutual funds or commingled funds.

4. Transaction Agent Assignment Restrictions

Assignment of specific brokerage firms, dealers, financial institutions, and other transaction execution agents to all investment managers shall be the sole responsibility of the Plan. From time to time, the Committee at its sole discretion may specify certain transaction agents that investment transactions shall be executed through.

5. Short Selling and Related Restrictions

There shall be no: short selling, securities lending, non-collateralized and/or non-delivered repurchase agreements, use of financial futures or options, use of leverage, non-marketable direct investments in equity or debt, leasebacks, Trust Preferred Securities or any other specialized investment activity without the prior written consent of the Committee.

6. Liquidity and Marketability Restrictions

Liquidity and marketability frequently are perceived to be a function of the quality and the market capitalization of each security holding. From the Plan's perspective, liquidity and marketability also may be a function of a manager's aggregate holdings in a particular security. The Plan believes that an investment manager should not buy or hold a publicly traded security for the Plan's portfolio if the aggregate holdings among all of that manager's other accounts in that same security would restrict the manager's ability to expeditiously liquidate the position at any time.

From a Total Plan perspective, the Committee believes the collective holdings among all Plan managers' accounts in that same security may restrict all managers' collective ability to expeditiously liquidate their respective positions in that same security. Therefore, the Plan retains the sole right to limit any manager's holding of any security in the Plan at any time in order to prevent the potential for said Plan's collective liquidation and market risk.

7. Usage of Custodian STIF on all Idle Cash Restrictions

Any idle cash not invested by the investment managers shall be invested daily via an automatic sweep STIF managed by the Custodian or by others in behalf of each investment manager. It is the Plan's objective to have no idle cash at any time in any manager's portfolios.

8. Usage of Cross Asset Segment Investment Guideline Restrictions

When a manager's holdings include Plan assets outside of their primary asset segment assignment (e.g. A primary domestic equity manager also holds some cash equivalents or fixed income securities as well as equities) the guidelines stated therein for the non-primary asset segment shall fully apply to the manager, in addition to the primary asset assigned segment guidelines.

9. Diversification Restrictions

Except for criteria noted elsewhere in this Policy and in specific written contracts with each manager, the appropriate and reasonable diversification of securities by such factors as geography, region, sovereign risk, native currency, quality, coupon, country risk, maturity, industry, duration, and sector is within the full discretion and responsibility of the investment managers.

10. Other Objectives, Guidelines and Restrictions Forthcoming

The Committee will develop additional objectives, guidelines and restrictions in the future on other areas as it deems appropriate.

11. Fund Segment Guidelines

Following are guidelines and objectives established for the Total Plan's segments and for each investment manager retained by the Committee. Individual manager guidelines are designed to be consistent, in aggregate, with the Total Plan's asset allocation guidelines and investment objectives set forth in the Statement of Investment Objectives and Guidelines.

11A. Equity Segment

Each separate account equity manager is expected to adhere to the following guidelines:

- Equity holdings in any one company (including common and preferred stock, convertible securities and debt) should not exceed five percent (5%) of the market value of the manager's portion of the Fund without the consent of the Committee.
- Equity holdings in any one sector (e.g., consumer cyclical, energy, technology, etc.) should not exceed 25% of the market value of the manager's portfolio or 10% of the manager's benchmark sector weight whichever is greater without the consent of the Committee.
- Cash equivalents and fixed income positions should not exceed five percent (5%) of the manager's portion of the Plan's assets. A manager may invest in fixed income securities (i.e. securities with more than two years to maturity) IF projected returns on such securities are perceived to be competitive with potential equity returns. However, fixed income securities should not represent more than five percent (5%) of a manager's portfolio without the prior written consent of the Committee.
- No purchase shall be made by an investment manager which would cause a holding to exceed 5% of the issue outstanding.

11B. International Equity Segment

Each separate account international equity manager is expected to adhere to the following minimum guidelines:

- Equity holdings in any one company and all of its subsidiaries and affiliates (including equities, convertible securities and debt) should not exceed five percent (5%) of the market value of the manager's portion of the Plan's portfolio without the prior written consent of the Committee.
- Equity holdings in any one sector (e.g., consumer cyclical, energy, technology, etc.) should not exceed thirty percent (30%) of the market value of the manager's portfolio without the prior written consent of the Committee.
- Cash equivalents and fixed income positions should not exceed five percent (5%) of the manager's portion of the Plan's assets. A manager may invest in fixed income securities (i.e. securities with more than two years to maturity) IF projected returns on such securities are perceived to be competitive with potential international equity returns. However, fixed income securities should not represent more than five percent (5%) of a manager's portfolio without the prior written consent of the Committee.
- The manager may enter into foreign exchange contracts on currency provided that: (a) such contracts have a maturity of one year or less, and (b) use of such contracts is limited solely and exclusively to hedging currency exposure existing within the manager's portfolio. The intent is to dampen portfolio volatility and prevent currency loss. There shall be no direct foreign currency speculation or any related investment

activity.

- The manager may purchase or sell currency on a spot basis to accommodate specific securities settlements.

11C. Fixed Income Segment

Each separate account fixed income manager is expected to adhere to the following guidelines:

- All fixed income securities held in each portfolio should have a Moody's, or Standard & Poor's quality rating of no less than Investment Grade from any of these rating services, with the exception of an approved high yield strategy, in which case the quality rating shall be no less than B. For an issue which is split-rated, the lower quality designation will govern.
- The diversification of securities by maturity, quality, sector, coupon and geography is the responsibility of the manager.
- The exposure of each manager's portfolio to any single security other than a security backed by the full faith and credit of the U.S. Government or any of its instrumentalities should be limited to five percent (5%) of the manager's portion of the Plan's portfolio, measured at market value.
- No purchase shall be made by a Fixed Income Manager which would cause a holding to exceed five percent (5%) of the issue outstanding.
- Not more than five percent (5%) of an investment manager's portfolio, valued at market, shall be invested in certificates of deposit, time deposits, bankers acceptances, commercial paper, or related investments of a single issuer financial institution or financial institution holding company family.
- The investment manager will use prudence in managing the risk of Collateralized Mortgage Obligations (CMOs). Only CMOS backed by pools of mortgages guaranteed by the full faith and credit of the U.S. government or an agency thereof will be used.
- IO's and PO's are not permitted in the portfolio.

11D. Cash and Equivalents Segment

Although investment managers will be retained for their expertise in a certain investment segment, it is expected that from time-to-time each will have some cash and equivalents in their portfolios as a result of discretionary asset allocation decisions. Any idle cash not invested by the investment managers shall be invested daily via an automatic sweep STIF managed by the custodian. It is the Plan's objective to have no idle cash at any time in any manager's portfolio.

11F. Pooled Vehicles

To the extent that the Committee invests a portion of the plan's assets in commingled vehicles or institutional mutual funds, then the investment guidelines of the fund's prospectus will be adopted as this fund's guidelines.

12. Individual Manager Descriptions and Five-Year Expectations

All expectations are minimums. All investment managers shall exceed the stated expectations or the specific benchmark criteria in its individual manager guidelines, if applicable.

In addition, each domestic equity and fixed income manager is expected to achieve positive risk-adjusted (alpha) performance over five (5) year period.

A shortfall over a period of four consecutive quarters will be examined by the Committee. While the Committee plans to take a long-term view of performance, perceived manager deficiencies will be quickly examined before Total Plan returns are impacted.

13. Reporting Requirements

Consultant Reporting

The Retirement Plan's Consultant will provide quarterly reports to the Retirement Plan Committee which, at a minimum, will review the following information about each Investment Manager and the total Fund:

- Overview of the most recent quarter and year-to-date investment indicators
- Total Fund asset allocation
- Source of investment return (income, capital appreciation or loss)
- Comparison of Total Plan return versus the actuarial rate and investment objectives
- Performance results by individual manager and Total Fund compared to appropriate benchmarks.

Investment Manager Reporting

Each Investment Manager will provide the Chairman of the Retirement Plan Committee with a quarterly report of their activity no later than thirty (30) days after the end of a quarter. Each report will contain the following information.

- Beginning asset value at cost and market
- Ending asset value at cost and market. New contributions should be separately identified. Asset listing should include appropriate information on each equity security position to include name, number of shares, dividend, yield, price to earnings ratio, cost, market value, current gain or loss and industry or sector. Debt security information

should include name, position size, cost, market value, coupon, maturity, rating, yield, and current gain or loss.

- Securities sold and purchased during the quarter
- Quarterly, year to date, and since inception performance results
- Brokerage fees for the quarter and year to date by brokerage firm utilized, cents per share each trade and total commission dollars expended.
- With each quarter's report, list the name and responsibility of key personnel who have been hired or terminated from the organization. The manager is to provide verbal and written notice to the Executive Director within ten days from the date of key person is hired or terminated.

Meeting Agenda

The Committee desires that meetings with its managers have a consistent agenda. The reason for this is threefold. First, the Committee wants to make its use of time with the investment managers more efficient in covering the points that need to be discussed. Secondly, the Committee wants continuity in order to effectively compare and contrast what the investment managers have articulated with respect to prospective portfolio strategy vis-à-vis actual portfolio structure and results. Thirdly, the Committee wants to understand how an individual investment manager's thinking has evolved since the previous meeting and over time.

Investment managers will receive fifteen (15) business days' notice on all meeting date requests. All quarterly meetings shall be held with the Committee or their designated representatives.

At each meeting, the written and oral presentations shall cover the following points:

- A report of performance for past periods. Standard time periods for each report will be last quarter, year to date, latest twelve (12) months, , three years, five years, etc., and since inception and by calendar year. Returns should be annualized and calculated on a time-weighted basis for the total portfolio. All returns should include price change plus income and/or dividends.
- Discussion of the rationale for performance results by relating them specifically to investment strategy and tactical decisions implemented during the current review period.
- Discussion of the investment manager's specific strategy for the portfolio over the next six to twelve months with specific reference to asset allocation and sector weighting, as appropriate.
- Supporting discussion of the next period's strategy with reference to investment manager's capital market and economic assumptions, if applicable.

The Committee is interested in fostering an effective working relationship with its investment

managers through a discipline of good communication. The establishment of Objectives, performance Standards, Policies and Guidelines, and Reporting Requirements is intended to provide the Committee with a good foundation from which to understand specific management styles and strategies, evaluate results and oversee progress toward overall investment objectives.

The Committee shall be using a third party consultant selected, hired and directed by the Committee to: (1) assist in appraising performance, (2) provide performance comparison data with other retirement plans, several capital market indices, and to other investment managers, (3) assist in evaluating manager style discipline and peer comparisons, (4) assist in strategic planning and management of the Plan, and (5) other factors the Committee deems appropriate. Investment managers are required to support and assist the consultant with their fullest cooperation.

End Notes:

July 2016 amendment summary

- 1) Update Overview page for position and provider changes.
- 2) In the Philosophy section clarify long term nature of goals and remove comment regarding liability driven focus of the fixed portfolio.
- 3) In the Investment Manager section update for the new approved asset allocation by defining bonds to include non-US securities, improved definition of real estate, and updated targets and ranges for various asset classes.
- 4) Add Real Estate section.
- 5) Remove Opportunity Fund section.
- 6) Add Alternative section.
- 7) Update benchmarks in the Investment Return Objectives section.
- 8) Update of the target allocations based on the revised asset allocation.
- 9) Minor clarifications in appendix A including updates to the maximum sector weightings by equity managers and the ability to allow a fixed income manager to purchase below investment grade fixed income if an approved mandate by the committee.

January 2020 amendment summary

- 1) Update Overview page for position and provider changes.
- 2) Minor typo corrections throughout.
- 3) Index name updates throughout.
- 4) Asset allocation adjustments to Appendix A Investment Structure including sub-category names.

Dallas Area Rapid Transit Pension Plan

Asset Allocation Review

February 2016

GAVION

Purpose, Scope, and Methodology

Purpose: The purpose of this study is to update the asset allocation that optimizes DART's potential to achieve risk-adjusted returns consistent with staff's revised assumptions of assumed returns of 5.30% and 5.59% net of all expenses.

Scope: The scope of this analysis includes 20+ years of historical returns, standard deviations, downside risk and correlations for most asset classes. Characteristics used for optimizations were based on three year projections, except for illiquid investments such as private real estate, private equity and private debt, where ten year projections are used.

Methodology: Our process is a blend of art and science and begins with a review of the historical risk and return characteristics of each asset class in this study, based upon a representative benchmark index for each asset class. We have assumed a basic familiarity with the indices used; however, further clarification can be provided if needed.

Methodology Continued

In addition to reviewing the historical analysis, Gavion consultants and analysts meet on a quarterly basis to review the recent performance of each asset class and discuss market outlook and debate asset class return forecasts and tactical portfolio shifts.

Finally, we do not profess to have a crystal ball. The only thing we know for certain is that none of the forecasts will materialize exactly as we predict. We offer this analysis only as our best, collective thoughts, as of this point in time, with the information we have at our disposal in an effort to assist with your asset allocation decision. The projections are guidelines and should be viewed as planning tools, not guarantees.

Executive Summary

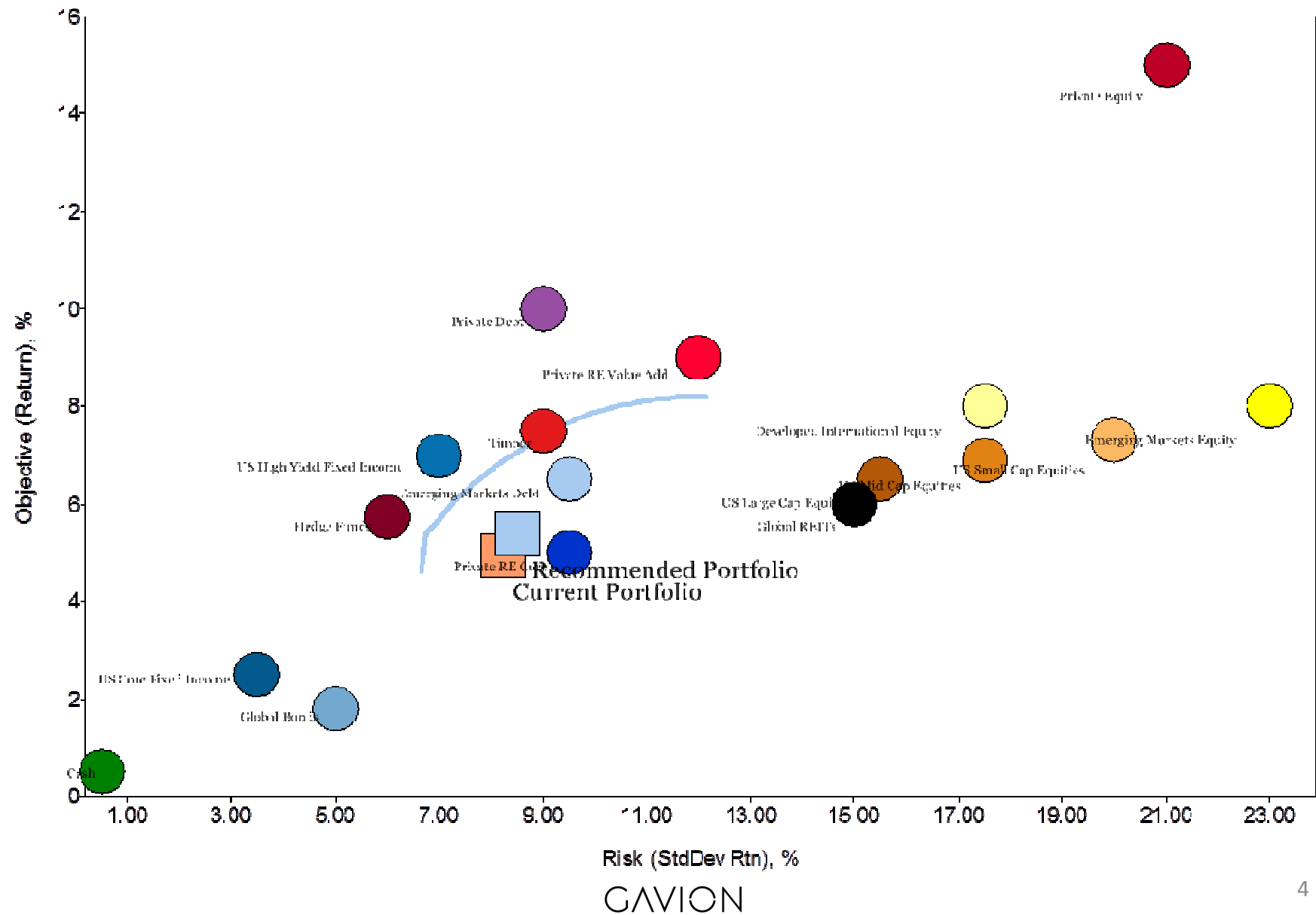
Adjust US equity exposure by reducing small and mid cap weights and increasing the large cap allocation. This should reduce equity volatility. Replace the Dow Jones Total Market cap index with the S&P 500 Index or similar large cap index fund. Additionally, add approximately 2% to the international equity allocation as international valuations look more attractive.

Reduce core US fixed income by 5% and allocate 5% to high yield. With the current spread widening in corporate bonds, the opportunity for a much higher return in high grade, high yield appears attractive.

Move half the core real estate allocation to value add real estate. We expect a significant increase in the return opportunity for value add, as high grade core property prices have accelerated and current cap rates have come down significantly.

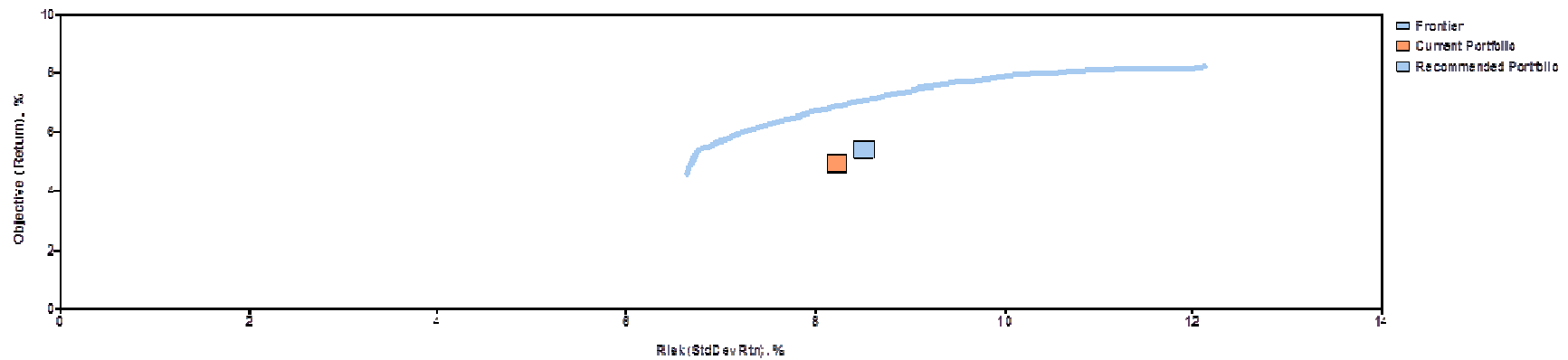
The recommended allocation is projected to add 0.45% to the return over time. The Monte Carlo simulations project the recommended portfolio would allow the plan to move to an immunized focus approximately 2 years sooner based on the funding analysis performed by staff.

Efficient Frontier

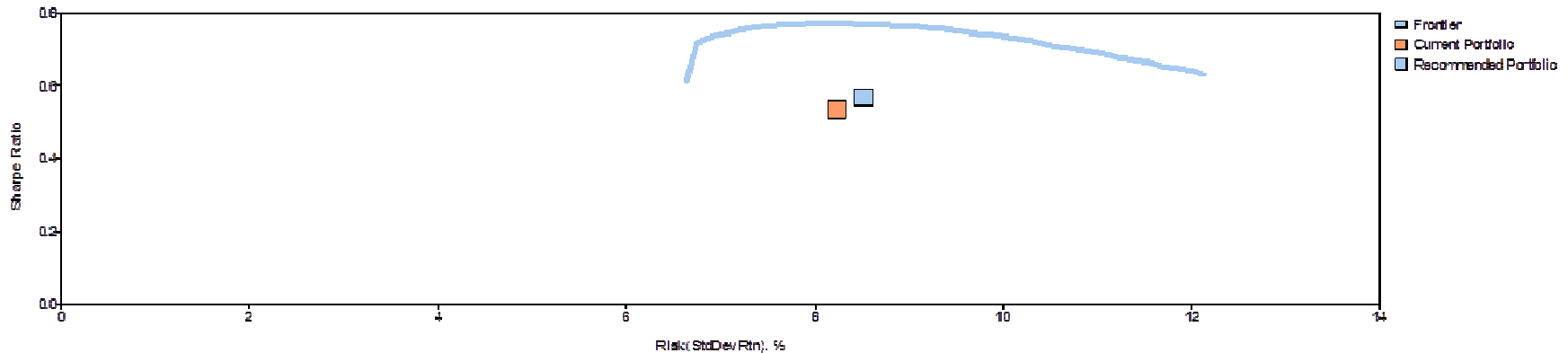


Efficient Frontier Portfolios

Return vs Risk



Sharpe Ratio vs Risk

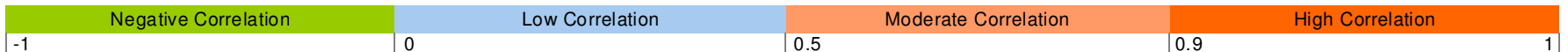


	Current Portfolio	Recommended Portfolio
Objective (Return), %	4.93%	5.38%
Risk (StdDev Rtn), %	8.23%	8.52%
Sharpe Ratio	0.54	0.57

Capital Markets Assumptions

Correlation Inputs

	Return, %	Std Dev	Correlation																	
1. Cash	0.50	0.50	1.00	1																
2. US Large Cap Equities	6.50	15.50	-0.10	1.00	2															
3. US Mid Cap Equities	6.90	17.50	-0.11	0.97	1.00	3														
4. US Small Cap Equities	7.30	20.00	-0.10	0.92	0.95	1.00	4													
5. Developed International Equity	8.00	17.50	-0.01	0.89	0.88	0.79	1.00	5												
6. Emerging Markets Equity	8.00	23.00	0.02	0.79	0.80	0.72	0.94	1.00	6											
7. US Core Fixed Income	2.50	3.50	0.04	0.03	0.04	-0.04	0.13	0.14	1.00	7										
8. US High Yield Fixed Income	7.00	7.00	-0.13	0.74	0.79	0.70	0.77	0.74	0.24	1.00	8									
9. Global Bonds	1.80	5.00	0.10	0.20	0.17	0.12	0.39	0.34	0.58	0.24	1.00	9								
10. Emerging Markets Debt	6.50	9.50	-0.06	0.60	0.61	0.51	0.71	0.70	0.59	0.76	0.46	1.00	10							
11. Private Debt	10.00	9.00	-0.03	0.72	0.74	0.66	0.76	0.71	-0.08	0.74	0.11	0.50	1.00	11						
12. Hedge Funds	5.75	6.00	0.00	0.71	0.74	0.64	0.81	0.79	-0.02	0.64	0.10	0.51	0.86	1.00	12					
13. Private Equity	15.00	21.00	-0.12	0.89	0.93	0.99	0.77	0.70	-0.08	0.69	0.09	0.47	0.66	0.64	1.00	13				
14. Timber	7.50	9.00	0.22	-0.04	-0.03	-0.01	0.03	0.04	-0.01	-0.04	0.03	-0.01	-0.04	0.07	0.00	1.00	14			
15. Private RE Value Add	9.00	12.00	0.19	-0.08	-0.09	-0.07	-0.03	-0.05	-0.32	-0.20	-0.19	-0.22	0.06	0.10	-0.05	0.46	1.00	15		
16. Private RE Core	5.00	9.50	0.14	-0.10	-0.11	-0.10	-0.06	-0.09	-0.31	-0.23	-0.19	-0.25	0.01	0.07	-0.08	0.36	0.96	1.00	16	
17. Global REITs	6.00	15.00	-0.04	0.81	0.83	0.79	0.77	0.69	0.27	0.77	0.34	0.68	0.59	0.52	0.76	-0.01	-0.09	-0.10	1.00	



The Correlation Matrix reveals the strength of return relationships between investments. A perfect linear relationship is represented by a correlation of 1, while a perfect negative relationship has a correlation of -1. A correlation of 0 indicates no relationship between the investments. Correlation is a critical component to asset allocation and can be a useful way to measure the diversity of a combined plan portfolio.

Proposed Portfolios

Asset Allocation Risk & Return Assumptions 5 Year Time Horizon						
Asset Class	Expected Return	Expected Standard Deviation	Current Portfolio	Recommended Portfolio	No High Yield Portfolio	All Value Add RE Portfolio
Cash	0.5%	0.5%	0.9%	1.0%	1.0%	1.0%
US Large Cap Equity	6.5%	15.5%	11.0%	18.0%	18.0%	18.0%
US Mid Cap Equity	6.9%	17.5%	20.1%	13.0%	13.0%	13.0%
US Small Cap Equity	7.3%	20.0%	9.1%	8.0%	8.0%	8.0%
International Equity	8.0%	17.5%	7.7%	9.0%	9.0%	9.0%
Emerging Mkts Equity	8.0%	23.0%	0.0%	1.0%	1.0%	1.0%
Core Fixed Income	2.5%	3.5%	40.6%	35.0%	40.0%	35.0%
Global Fixed Income	1.8%	5.0%	0.0%	0.0%	0.0%	0.0%
High Yield Fixed Income	7.0%	7.0%	0.0%	5.0%	0.0%	5.0%
Emerging Markets Debt	6.5%	9.5%	0.0%	0.0%	0.0%	0.0%
Private Debt	10.0%	9.0%	0.0%	0.0%	0.0%	0.0%
Hedge Funds	5.8%	6.0%	0.0%	0.0%	0.0%	0.0%
Global REITS	6.0%	15.0%	0.0%	0.0%	0.0%	0.0%
Private Real Estate (Core)	5.0%	9.5%	10.6%	5.0%	3.0%	0.0%
Private Real Estate (Value Add)	9.0%	12.0%	0.0%	5.0%	7.0%	10.0%
Timber	7.5%	9.0%	0.0%	0.0%	0.0%	0.0%
Private Equity	15.0%	21.0%	0.0%	0.0%	0.0%	0.0%
Expected Return, %			4.93%	5.38%	5.24%	5.58%
Risk (Standard Deviation), %			8.23%	8.52%	8.28%	8.53%
Expected Yield, %			2.66%	2.87%	2.62%	2.82%
Best Case Return - 1 Year*			18.90%	19.92%	19.34%	20.16%
Probability of Negative Return - 1 Year			29.41%	28.21%	28.02%	27.30%
Worst Case Return - 1 Year*			-7.51%	-7.59%	-7.33%	-7.41%
Best Case Return - 5 Years*			10.83%	11.49%	11.18%	11.69%
Probability of Negative Return - 5 Years			9.60%	8.50%	8.43%	7.77%
Worst Case Return - 5 Years*			-1.15%	-0.94%	-0.88%	-0.73%

*Best and worst case scenarios are based on a 2-standard deviation event. Calculated from MPI.

NPL Sensitivity

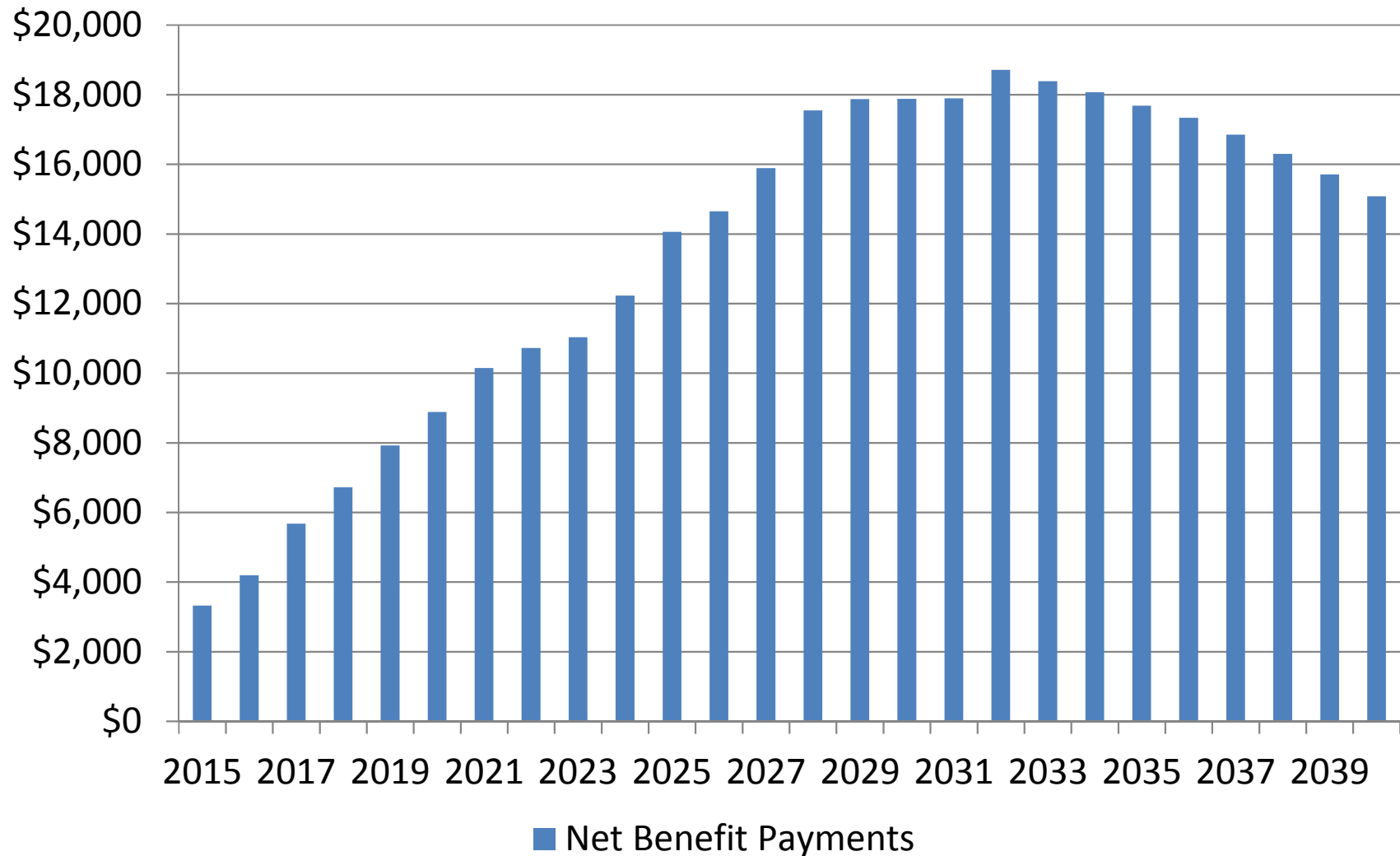
Sensitivity of the net pension liability to changes in the discount rate

The following presents the net pension liability, calculated using the discount rate of 7.00%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.00%) or 1-percentage-point higher (8.00%) than the current rate:

	1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
Net Pension Liability	\$ 88,366,413	\$ 62,190,155	\$ 40,257,865

Source: Buck Consultants, March 2015, DART GASB 67 Report

Current DART Projected Net Cash Flows (000)



Source: Buck Consultants, March 2015, DART GASB 67 Report

GAVION

Staff Analysis (5.30% assumption)

DART Funded Asset Allocation Held At 50% Equity And 50% Fixed Equity Return at 6.75% with Fixed Return at 3.85%

Year	Projected Benefit Payments	Equity Investment Returns	Core Fixed Investment Returns	Total Returns	Contribution	Equity Portion	Fixed Portion	Fund Balance	Fixed %	Equity %	Funding %
12/31/15						91,521,262	64,565,535	156,086,797	41%	59%	74.3%
2016	10,075,500	4,633,264	1,864,330	6,497,594	10,000,000	81,154,526	81,354,365	162,508,891	50%	50%	80.7%
2017	14,086,000	5,477,931	3,132,143	8,610,074	10,000,000	83,632,456	83,400,508	167,032,964	50%	50%	80.0%
2018	14,720,000	5,645,191	3,210,920	8,856,110	10,000,000	85,277,647	85,891,427	171,169,075	50%	50%	79.4%
2019	15,405,000	5,756,241	3,306,820	9,063,061	10,000,000	87,033,888	87,793,247	174,827,136	50%	50%	79.4%
2020	16,086,000	5,874,787	3,380,040	9,254,828	10,000,000	88,908,676	89,087,287	177,995,963	50%	50%	80.2%
2021	16,746,000	6,001,336	3,429,861	9,431,196	10,000,000	90,910,012	89,771,148	180,681,160	50%	50%	81.0%
2022	17,369,000	6,136,426	3,456,189	9,592,615	10,000,000	92,046,437	90,858,337	182,904,775	50%	50%	81.9%
2023	18,089,000	6,213,135	3,498,046	9,711,181	10,000,000	92,259,572	92,267,383	184,526,955	50%	50%	82.7%
2024	18,585,000	6,227,521	3,552,294	9,779,815	10,000,000	92,487,093	93,234,677	185,721,770	50%	50%	83.8%
2025	18,985,000	6,242,879	3,589,535	9,832,414	10,000,000	92,729,972	93,839,213	186,569,184	50%	50%	85.0%
2026	19,328,000	6,259,273	3,612,810	9,872,083	10,000,000	92,989,245	94,124,022	187,113,267	50%	50%	86.4%
2027	19,649,000	6,276,774	3,623,775	9,900,549	10,000,000	93,266,019	94,098,797	187,364,816	50%	50%	88.0%
2028	19,819,000	6,295,456	3,622,804	9,918,260	10,000,000	93,561,475	93,902,601	187,464,076	50%	50%	90.0%
2029	19,849,000	6,315,400	3,615,250	9,930,650	10,000,000	93,876,875	93,668,851	187,545,726	50%	50%	92.4%
2030	19,877,000	6,336,689	3,606,251	9,942,940	10,000,000	94,213,564	93,398,102	187,611,666	50%	50%	95.2%
2031	19,802,000	6,359,416	3,595,827	9,955,242	10,000,000	94,572,979	93,191,929	187,764,908	50%	50%	98.5%
2032	19,589,000	6,383,676	3,587,889	9,971,565	10,000,000	94,956,656	93,190,818	188,147,473	50%	50%	102.4%
2033	19,292,000	6,409,574	3,587,847	9,997,421	10,000,000	94,366,230	94,486,664	188,852,894	50%	50%	107.2%
2034	18,897,000	-	3,637,737	3,637,737	10,000,000	(0)	183,593,631	183,593,631	100%	0%	109.1%
2035	18,503,000	-	7,068,355	7,068,355	1,700,000	(0)	173,858,986	173,858,986	100%	0%	108.6%
2036	18,001,000	-	6,693,571	6,693,571	-	(0)	162,551,557	162,551,557	100%	0%	107.1%
2037	17,434,000	-	6,258,235	6,258,235	-	(0)	151,375,792	151,375,792	100%	0%	105.6%
2038	16,834,000	-	5,827,968	5,827,968	-	(0)	140,369,760	140,369,760	100%	0%	104.2%
2039	16,201,000	-	5,404,236	5,404,236	-	(0)	129,572,996	129,572,996	100%	0%	102.8%
2040	15,529,000	-	4,988,560	4,988,560	-	(0)	119,032,556	119,032,556	100%	0%	101.2%
2041	14,821,000	-	4,582,753	4,582,753	-	(0)	108,794,309	108,794,309	100%	0%	99.7%
2042	14,080,000	-	4,188,581	4,188,581	-	(0)	98,902,890	98,902,890	100%	0%	98.2%
2043	13,309,000	-	3,807,761	3,807,761	-	(0)	89,401,651	89,401,651	100%	0%	96.8%
2044	12,512,000	-	3,441,964	3,441,964	-	(0)	80,331,615	80,331,615	100%	0%	95.2%
2045	11,692,000	-	3,092,767	3,092,767	-	(0)	71,732,382	71,732,382	100%	0%	93.6%
2046	10,858,000	-	2,761,697	2,761,697	-	(0)	63,636,079	63,636,079	100%	0%	92.2%
2047	10,015,000	-	2,449,989	2,449,989	-	(0)	56,071,068	56,071,068	100%	0%	90.7%
2048	9,171,000	-	2,158,736	2,158,736	-	(0)	49,058,804	49,058,804	100%	0%	89.2%
2049	8,334,000	-	1,888,764	1,888,764	-	(0)	42,613,568	42,613,568	100%	0%	87.9%
2050	7,512,000	-	1,640,622	1,640,622	-	(0)	36,742,191	36,742,190	100%	0%	86.5%
2051	6,712,000	-	1,414,574	1,414,574	-	(0)	31,444,765	31,444,765	100%	0%	85.2%
2052	5,942,000	-	1,210,623	1,210,623	-	(0)	26,713,388	26,713,388	100%	0%	84.3%
2053	5,208,000	-	1,028,465	1,028,465	-	(0)	22,533,854	22,533,854	100%	0%	83.5%
2054	4,515,000	-	867,553	867,553	-	(0)	18,886,407	18,886,407	100%	0%	82.1%
2055	3,871,000	-	727,127	727,127	-	(0)	15,742,534	15,742,534	100%	0%	98.4%
Remaining	16,483,000	-	606,088	606,088	134,379	(0)	0	0	219%	-119%	0.0%
Total	593,785,500				191,834,379						

NPV @ 5% \$121,512,100

CAVION

Staff Analysis (5.59% assumption)

DART Funded Asset Allocation Held At 60% Equity And 40% Fixed Equity Return at 6.75% with Fixed Return at 3.85%

Year	Projected Benefit Payments	Equity Investment Returns	Core Fixed Investment Returns	Total Returns	Contribution	Equity Portion	Fixed Portion	Fund Balance	Fixed %	Equity %	Funding %
12/31/15						91,521,262	64,565,535	156,086,797	41%	59%	74.3%
2016	10,075,500	4,633,264	1,864,330	6,497,594	10,000,000	95,654,526	66,854,365	162,508,891	41%	59%	80.7%
2017	14,086,000	6,456,681	2,573,893	9,030,574	10,000,000	98,111,206	69,342,258	167,453,464	41%	59%	80.2%
2018	14,720,000	6,622,506	2,669,677	9,292,183	10,000,000	100,733,713	71,291,935	172,025,648	41%	59%	79.8%
2019	15,405,000	6,799,526	2,744,740	9,544,265	10,000,000	103,533,238	72,631,674	176,164,913	41%	59%	80.0%
2020	16,086,000	6,988,494	2,796,319	9,784,813	10,000,000	105,521,732	74,341,994	179,863,726	41%	59%	81.0%
2021	16,746,000	7,122,717	2,862,167	9,984,884	10,000,000	107,644,449	75,458,161	183,102,610	41%	59%	82.1%
2022	17,369,000	7,266,000	2,905,139	10,171,140	10,000,000	108,910,449	76,994,300	185,904,749	41%	59%	83.2%
2023	18,089,000	7,351,455	2,964,281	10,315,736	10,000,000	110,261,905	77,869,580	188,131,485	41%	59%	84.4%
2024	18,585,000	7,442,679	2,997,979	10,440,657	10,000,000	111,704,583	78,282,559	189,987,142	41%	59%	85.7%
2025	18,985,000	7,540,059	3,013,879	10,553,938	10,000,000	112,244,643	79,311,438	191,556,080	41%	59%	87.3%
2026	19,328,000	7,576,513	3,053,490	10,630,004	10,000,000	112,821,156	80,036,928	192,858,084	42%	58%	89.1%
2027	19,649,000	7,615,428	3,081,422	10,696,850	10,000,000	113,436,584	80,469,350	193,905,934	41%	59%	91.1%
2028	19,819,000	7,656,969	3,098,070	10,755,039	10,000,000	114,093,553	80,748,420	194,841,973	41%	59%	93.5%
2029	19,849,000	7,701,315	3,108,814	10,810,129	10,000,000	114,794,868	81,008,234	195,803,102	41%	59%	96.5%
2030	19,877,000	7,748,654	3,118,817	10,867,471	10,000,000	115,543,522	81,250,051	196,793,573	41%	59%	99.8%
2031	19,802,000	7,799,188	3,128,127	10,927,315	10,000,000	116,342,710	81,576,178	197,918,888	41%	59%	103.8%
2032	19,589,000	7,853,133	3,140,683	10,993,816	10,000,000	117,195,843	82,127,861	199,323,703	41%	59%	108.5%
2033	19,292,000	7,910,719	3,161,923	11,072,642	9,500,000	118,106,562	82,497,783	200,604,345	41%	59%	113.9%
2034	18,897,000	-	3,176,165	3,176,165	-	0	184,883,510	184,883,510	100%	0%	109.9%
2035	18,503,000	-	7,118,015	7,118,015	-	0	173,498,525	173,498,525	100%	0%	108.4%
2036	18,001,000	-	6,679,693	6,679,693	-	0	162,177,219	162,177,219	100%	0%	106.8%
2037	17,434,000	-	6,243,823	6,243,823	-	0	150,987,041	150,987,041	100%	0%	105.4%
2038	16,834,000	-	5,813,001	5,813,001	-	0	139,966,043	139,966,043	100%	0%	103.9%
2039	16,201,000	-	5,388,693	5,388,693	-	0	129,153,735	129,153,735	100%	0%	102.4%
2040	15,529,000	-	4,972,419	4,972,419	-	0	118,597,154	118,597,154	100%	0%	100.8%
2041	14,821,000	-	4,565,990	4,565,990	-	0	108,342,144	108,342,144	100%	0%	99.3%
2042	14,080,000	-	4,171,173	4,171,173	-	0	98,433,317	98,433,317	100%	0%	97.7%
2043	13,309,000	-	3,789,683	3,789,683	-	0	88,914,000	88,914,000	100%	0%	96.2%
2044	12,512,000	-	3,423,189	3,423,189	-	0	79,825,189	79,825,189	100%	0%	94.6%
2045	11,692,000	-	3,073,270	3,073,270	-	0	71,206,459	71,206,459	100%	0%	93.0%
2046	10,858,000	-	2,741,449	2,741,449	-	0	63,089,907	63,089,907	100%	0%	91.4%
2047	10,015,000	-	2,428,961	2,428,961	-	0	55,503,869	55,503,869	100%	0%	89.8%
2048	9,171,000	-	2,136,899	2,136,899	-	0	48,469,768	48,469,768	100%	0%	88.1%
2049	8,334,000	-	1,866,086	1,866,086	-	0	42,001,854	42,001,854	100%	0%	86.6%
2050	7,512,000	-	1,617,071	1,617,071	-	0	36,106,925	36,106,925	100%	0%	85.0%
2051	6,712,000	-	1,390,117	1,390,117	-	0	30,785,042	30,785,042	100%	0%	83.4%
2052	5,942,000	-	1,185,224	1,185,224	-	0	26,028,266	26,028,266	100%	0%	82.1%
2053	5,208,000	-	1,002,088	1,002,088	-	0	21,822,354	21,822,354	100%	0%	80.8%
2054	4,515,000	-	840,161	840,161	-	0	18,147,515	18,147,515	100%	0%	78.9%
2055	3,871,000	-	698,679	698,679	-	0	14,975,194	14,975,194	100%	0%	93.6%
Remaining	16,483,000	-	576,545	576,545	931,261	0	(0)	(0)	161%	-61%	0.0%
Total	593,785,500				180,431,261						

NPV @ 5% \$116,814,091

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Monte Carlo Simulation Portfolio Levels

(Log Normal plus Cash Flows of \$10 million per year Contribution)

	Current Portfolio				
	1 Year	3 Years	5 Years	10 Years	20 Years
5th Percentile	\$141,466,755	\$132,189,801	\$124,043,890	\$99,533,113	\$28,660,183
25th Percentile	\$151,429,708	\$150,690,319	\$149,388,037	\$136,754,756	\$89,040,809
Median	\$159,340,305	\$165,536,436	\$169,285,488	\$169,609,387	\$146,978,501
75th Percentile	\$168,472,668	\$182,693,078	\$193,002,073	\$207,469,656	\$221,784,043
95th Percentile	\$183,044,642	\$210,935,088	\$231,755,348	\$279,279,593	\$368,539,860

	Recommended Portfolio				
	1 Year	3 Years	5 Years	10 Years	20 Years
5th Percentile	\$141,352,650	\$133,030,435	\$125,547,465	\$103,635,549	\$38,033,317
25th Percentile	\$151,888,087	\$152,180,577	\$152,010,229	\$143,535,024	\$105,161,599
Median	\$160,143,647	\$167,675,617	\$173,174,795	\$178,441,621	\$170,394,303
75th Percentile	\$169,496,874	\$185,650,635	\$198,323,770	\$219,677,697	\$255,151,790
95th Percentile	\$184,508,988	\$215,512,278	\$238,814,018	\$297,218,550	\$423,865,205

Gavion Wealth Simulation

(Log Normal plus Cash Flows of \$10 million per year Contribution)

Wealth (Simulation Log Normal plus Cash Flows of \$10 million per year contribution)

	Current Portfolio	Recommended Portfolio
	<u>50th Percentile</u>	<u>50th Percentile</u>
2015	\$156,134,190	\$156,134,190
2015 - 2016	\$159,340,305	\$160,143,647
2015 - 2017	\$162,798,216	\$164,162,326
2015 - 2018	\$165,536,436	\$167,675,617
2015 - 2019	\$168,215,558	\$171,292,051
2015 - 2020	\$169,285,488	\$173,174,795
2015 - 2021	\$171,084,246	\$175,844,348
2015 - 2022	\$171,329,273	\$177,147,184
2015 - 2023	\$171,213,379	\$177,844,422
2015 - 2024	\$170,352,128	\$178,060,140
2015 - 2025	\$169,609,387	\$178,441,621
2015 - 2026	\$168,050,657	\$178,210,735
2015 - 2027	\$165,545,284	\$177,336,710
2015 - 2028	\$163,595,597	\$176,250,215
2015 - 2029	\$160,295,371	\$174,243,245
2015 - 2030	\$158,034,788	\$173,077,759
2015 - 2031	\$155,823,926	\$172,367,846
2015 - 2032	\$152,942,085	\$170,776,841
2015 - 2033	\$150,844,421	\$170,570,616
2015 - 2034	\$148,451,332	\$170,343,061
2015 - 2035	\$146,978,501	\$170,394,303
2015 - 2036	\$145,431,782	\$171,051,739
2015 - 2037	\$145,496,652	\$172,206,557
2015 - 2038	\$144,700,119	\$173,592,371

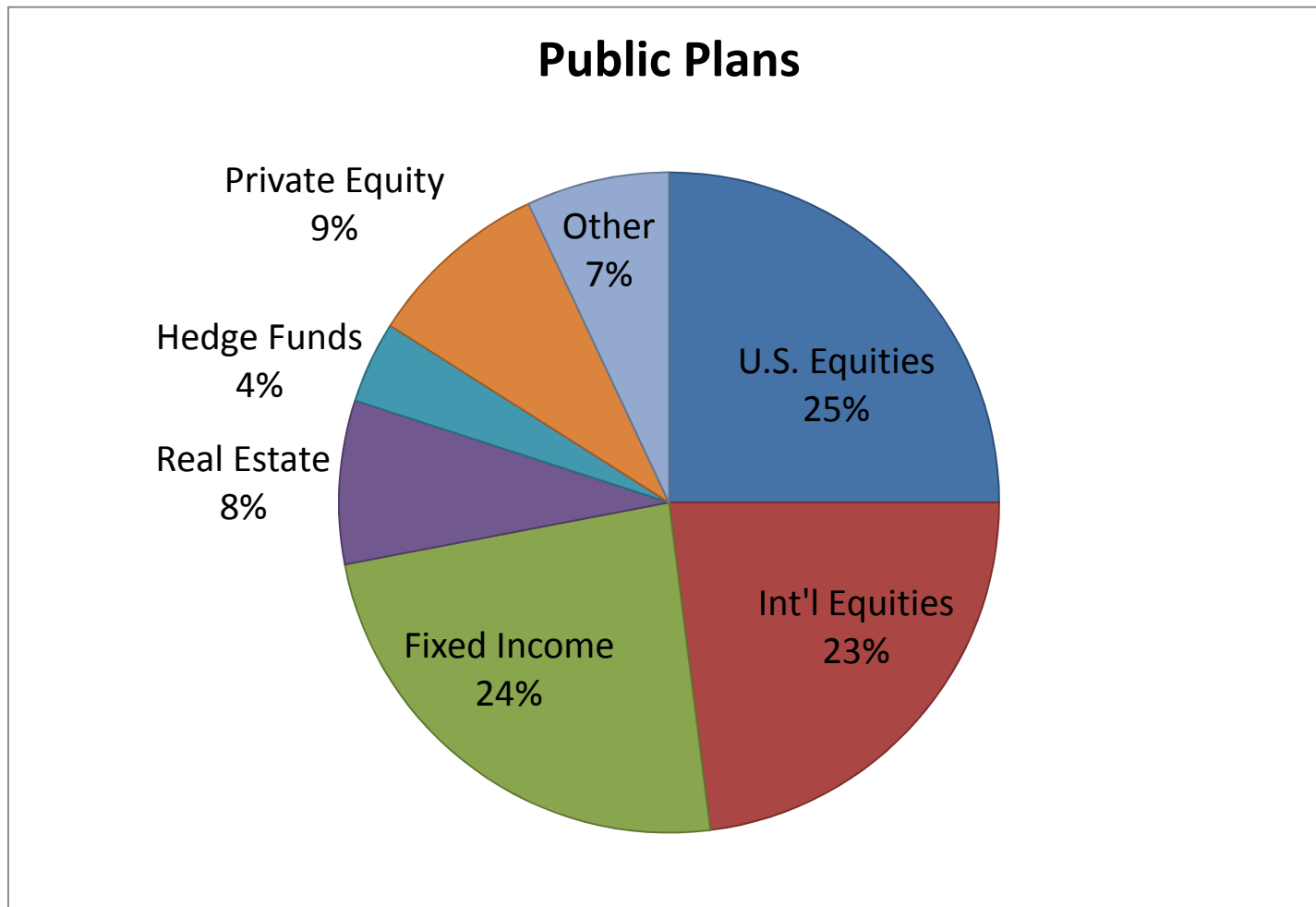
Projected Immunized Year **2038**
 (Two Standard Deviation Projection from MPI analysis)

2036

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Appendix

U.S. Public Institutions' Asset Mix of DB Plans 2014

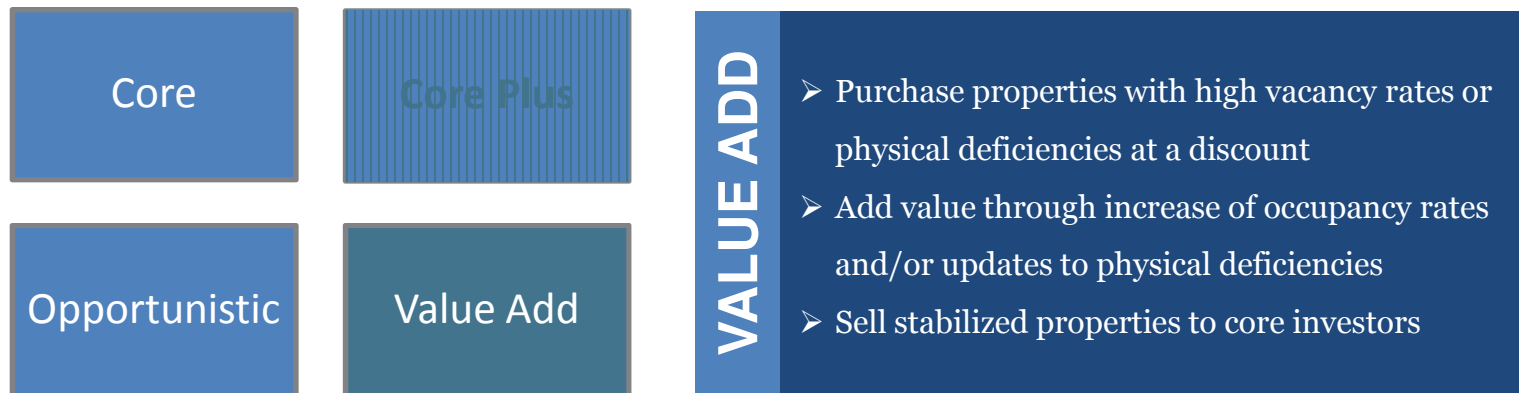


Source: Greenwich Associates 2014, USII-14. Projections based only on the assets of institutions disclosing their specific asset allocation. Other investments include multi-asset, commodities, and money markets.

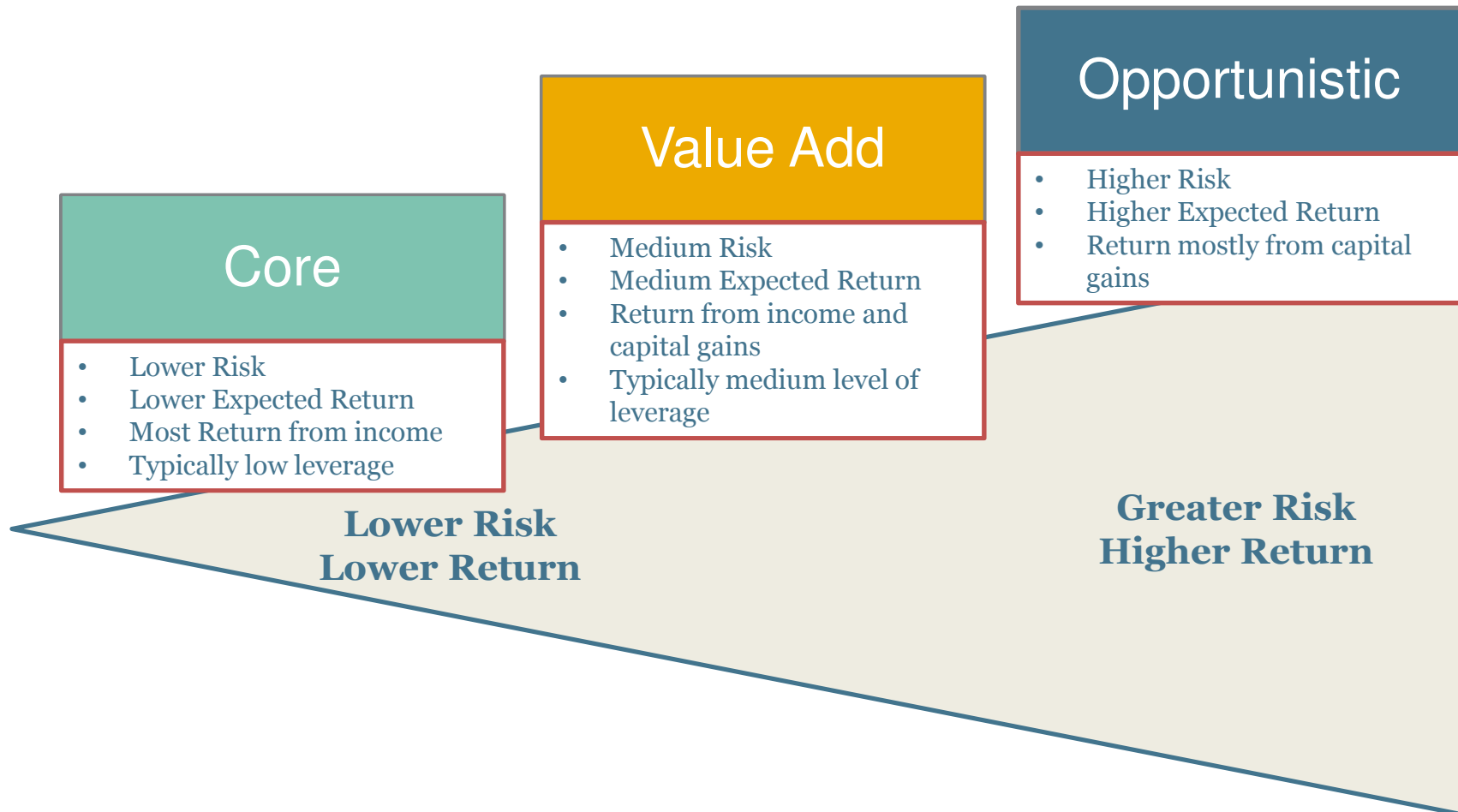
Value Add Real Estate – An Overview

Commercial Real Estate Investing is commonly categorized within the following four investment strategies: Core, Core Plus, Value Add and Opportunistic.

Value Add real estate investment strategies focus on the opportunity to increase the value of particular real estate investments. Frequently, the most opportune properties have high vacancy rates or other physical deficiencies. Value Add investors will purchase these properties at a discount, and work to increase occupancy rates and repair/update physical deficiencies. Once the property is stabilized, these properties may be sold to Core investors.



Real Estate Risk | Reward Profile



Core vs. Value Add

- Investors' desire for stabilized, class A core assets in primary markets has resulted in high asset prices and low cap rates*, leading to reduced expected returns.
- Compared to core properties, traditional value add assets can be acquired at more attractive prices and cap rates* because they generally carry greater risks (lease up risk, volatility in income). Risks can be mitigated by acquiring value add assets in the right stage of the real estate cycle.
- With a high percentage of over leveraged owners and limited competing capital for value add opportunities, the market environment and fundamentals are positive for value add real estate. With core assets near peak values, value add opportunities offer better risk-adjusted returns at this time in the real estate cycle.

*A cap rate is a method of quoting observed property prices in relation to the expected first year asset-level income. A cap rate is the expected first year income yield on an income property investment. It is defined as the ratio of the property net operating income (NOI) to current market value (V). In commercial real estate, the capitalization rate (or cap rate) is a tool widely used to estimate the value of a particular property. It is the foundation of the “direct capitalization” method of real estate valuation. In this context, income property can be valued by applying a cap rate to an estimate of first year net operating income (NOI). For example, if the cap rate for an office building producing an annual NOI of \$1 million is 10%, then the estimated value of the property is \$10 million. A lower cap rate would imply a higher property value. A higher cap rate would imply a lower property value. - *Source: Cornerstone Real Estate, Cap Rates and Real Estate Cycles 2009*

S&P500 Return Computation Table

3 Year Horizon

Operating Earnings			
	31-Dec-15	Reported Earnings	Operating Earnings
Price	2,043.94	51.8% in 2010	77.35
Trail 4 Qtr EPS	\$106.39	12.4% in 2011	86.95
Trail P/E	19.2	-0.5% in 2012	86.51
Forward EPS	\$125.56	15.8% in 2013	100.20
P/E	16.3	2.1% in 2014	102.31
Dividend	\$44.15	-4.1% in 2015	95.38
Indicated Yld	2.16%	20.3% in 2016	118.50
		5.0% in 2017	124.43
		5.0% in 2018	130.65

Expected Annualized Return including Dividends

		0.0%	2.0%	4.0%	6.0%	8.0%	10.0%
Yield	Proj. P/E 's	\$ 106.39	\$ 112.90	\$ 119.67	\$ 126.71	\$ 134.02	\$ 141.61
9.0%	11.1	-14.5%	-12.9%	-11.2%	-9.5%	-7.9%	-6.2%
8.5%	11.8	-12.9%	-11.2%	-9.5%	-7.8%	-6.1%	-4.4%
8.0%	12.5	-11.2%	-9.5%	-7.7%	-6.0%	-4.3%	-2.5%
7.5%	13.3	-9.3%	-7.5%	-5.8%	-4.0%	-2.2%	-0.4%
7.0%	14.3	-7.2%	-5.4%	-3.6%	-1.8%	0.0%	1.8%
6.5%	15.4	-5.0%	-3.1%	-1.3%	0.6%	2.5%	4.3%
6.0%	16.7	-2.5%	-0.6%	1.3%	3.3%	5.2%	7.1%
5.5%	18.2	0.3%	2.3%	4.3%	6.2%	8.2%	10.2%
5.0%	20.0	3.5%	5.5%	7.6%	9.6%	11.6%	13.6%
4.5%	22.2	7.1%	9.2%	11.3%	13.4%	15.5%	17.6%

++ Source: S&P Web Site 1/14/2016. Estimates are a bottom up basis from April 2015 forward.

GAVION Projection

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Russell 2000 Return Computation Table

3 Year Horizon

	EPS	Earnings Growth Rate	Multiple			11-Jan-16
Trailing 12	\$ 28.51		36.5	^^	Forecast EPS	\$48.90
Forward 12	\$ 48.90	71.5%	21.3	^^	Price	1,041.90
Y+ 1	\$ 60.07	22.8%	17.3	^^	P/E	21.3
Y+ 2	\$ 63.09	5.0%	16.5	^^	Dividend	\$18.21
					Yield	1.74%

Expected Annualized Return including Dividends

		0.0%	3.0%	6.0%	9.0%	12.0%	15.0%
Yield	Multiple	48.90	53.43	58.24	63.33	68.70	74.37
8.0%	12.5	-14.5%	-12.0%	-9.5%	-7.0%	-4.5%	-2.0%
7.0%	14.3	-10.7%	-8.1%	-5.5%	-2.9%	-0.2%	2.4%
6.0%	16.7	-6.1%	-3.4%	-0.6%	2.2%	4.9%	7.7%
5.5%	18.2	-3.4%	-0.6%	2.3%	5.1%	8.0%	10.8%
5.0%	20.0	-0.3%	2.6%	5.5%	8.5%	11.4%	14.3%
4.5%	22.2	3.2%	6.2%	9.2%	12.3%	15.3%	18.4%
4.0%	25.0	7.2%	10.4%	13.5%	16.7%	19.9%	23.0%
3.5%	28.6	12.0%	15.3%	18.6%	21.9%	25.2%	28.6%
3.0%	33.3	17.8%	21.3%	24.8%	28.3%	31.8%	35.2%

^^ Source: Bloomberg (RUY Index EEO), 1/12/2016

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Fixed Income Return Projection Worksheet

12/31/2015	Barclays High Yield Index		Barclays Ba/B Index		Barclays Credit 24%		Barclays Govts 45%		Barclays Securitized 31%	
Maturity Value	1,000,000		1,000,000		1,000,000		1,000,000		1,000,000	
Coupon	2.70%		6.36%		4.25%		2.28%		3.65%	
Maturity in Years	6.2		6.3		10.5		7.4		6.7	
Yield	8.74%	6.86%	7.28%	5.40%	3.67%	1.79%	1.88%		2.77%	0.89%
Price	\$72.03		\$95.46		\$104.99		\$102.78		\$105.34	
Current Value	720,335		954,567		1,049,950		1,027,766		1,053,362	
Current Yield	3.75%		6.66%		4.05%		2.22%		3.47%	
Annual Default Adj.	1.20%		0.30%							

Three Year Horizon

Projected Change in Interest Rates	Value 3 Yrs. Later	Expected Return	Value 3 Yrs. Later	Expected Return	Value 3 Yrs. Later	Expected Return	Value 3 Yrs. Later	Expected Return	Value 3 Yrs. Later	Expected Return
-2.0%	\$ 1,032,297	15.29%	\$ 1,032,297	9.01%	\$ 1,181,366	8.06%	\$ 1,105,854	4.69%	\$ 1,105,496	5.09%
-1.5%	\$ 1,017,171	14.74%	\$ 1,017,171	8.50%	\$ 1,143,248	6.93%	\$ 1,082,738	3.97%	\$ 1,086,171	4.49%
-1.0%	\$ 1,002,345	14.19%	\$ 1,002,345	8.00%	\$ 1,106,627	5.82%	\$ 1,060,227	3.26%	\$ 1,067,285	3.90%
-0.5%	\$ 987,811	13.65%	\$ 987,811	7.51%	\$ 1,071,434	4.73%	\$ 1,038,301	2.56%	\$ 1,048,826	3.32%
0.0%	\$ 973,563	13.11%	\$ 973,563	7.02%	\$ 1,037,607	3.65%	\$ 1,016,943	1.87%	\$ 1,030,782	2.75%
0.5%	\$ 959,593	12.58%	\$ 959,593	6.54%	\$ 1,005,086	2.60%	\$ 996,135	1.18%	\$ 1,013,143	2.18%
1.0%	\$ 945,895	12.05%	\$ 945,895	6.06%	\$ 973,813	1.57%	\$ 975,861	0.51%	\$ 995,896	1.61%
1.5%	\$ 932,462	11.53%	\$ 932,462	5.58%	\$ 943,734	0.56%	\$ 956,103	-0.16%	\$ 979,032	1.06%
2.0%	\$ 919,287	11.02%	\$ 919,287	5.12%	\$ 914,797	-0.44%	\$ 936,847	-0.82%	\$ 962,539	0.50%

Expected Return with +0.5% Change = (24%*2.60) + (45%*1.18) + (31%*2.18) = 1.84%

Expected Return No Change= (24%*3.65) + (45%*1.87) + (31%*2.75) = 2.57%

Source: Bloomberg, 1/11/2016

Non-US Fixed Income Return Projection Worksheet

12/31/2015	JPM EMBI Global Div. (External)		JPM GBI-EM Global Div. (Local)		Barclays Global Aggregate		Citigroup WGBI (USD)		Citigroup NonUS WGBI	
Maturity Value	1,000,000		1,000,000		1,000,000		1,000,000		1,000,000	
Coupon	6.13%		6.61%		2.96%		2.46%		2.72%	
Maturity in Years	10.6		7.1		8.5		8.6		9.6	
Yield	6.39%		7.13%		1.77%		1.16%		0.89%	-0.28%
Price	\$98.04		\$97.19		\$109.26		\$110.59		\$116.72	
Current Value	980,400		971,886		1,092,639		1,105,948		1,167,152	
Current Yield	6.25%		6.80%		2.71%		2.23%		2.33%	

Three Year Horizon

Projected Change in Interest Rates	Value 3 Yrs. Later	Expected Return	Value 3 Yrs. Later	Expected Return	Value 3 Yrs. Later	Expected Return	Value 3 Yrs. Later	Expected Return	Value 3 Yrs. Later	Expected Return
-2.0%	\$ 1,053,148	8.67%	\$ 1,053,148	9.51%	\$ 1,175,152	5.17%	\$ 1,190,617	4.72%	\$ 1,262,293	4.97%
-1.5%	\$ 1,034,783	8.07%	\$ 1,034,783	8.91%	\$ 1,145,337	4.29%	\$ 1,159,045	3.80%	\$ 1,223,719	3.92%
-1.0%	\$ 1,016,840	7.48%	\$ 1,016,840	8.32%	\$ 1,116,447	3.43%	\$ 1,128,487	2.90%	\$ 1,186,552	2.88%
-0.5%	\$ 999,306	6.89%	\$ 999,306	7.73%	\$ 1,088,448	2.58%	\$ 1,098,905	2.01%	\$ 1,150,735	1.86%
0.0%	\$ 982,172	6.31%	\$ 982,172	7.15%	\$ 1,061,310	1.74%	\$ 1,070,262	1.14%	\$ 1,116,212	0.85%
0.5%	\$ 965,425	5.74%	\$ 965,425	6.58%	\$ 1,035,000	0.92%	\$ 1,042,526	0.28%	\$ 1,082,929	-0.14%
1.0%	\$ 949,055	5.18%	\$ 949,055	6.01%	\$ 1,009,490	0.11%	\$ 1,015,661	-0.57%	\$ 1,050,836	-1.11%
1.5%	\$ 933,051	4.62%	\$ 933,051	5.45%	\$ 984,751	-0.70%	\$ 989,638	-1.41%	\$ 1,019,885	-2.07%
2.0%	\$ 917,405	4.06%	\$ 917,405	4.90%	\$ 960,757	-1.49%	\$ 964,424	-2.24%	\$ 990,028	-3.01%

Source: JP Morgan Markets and Bloomberg, 1/14/2016

Disclosures

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DALLAS AREA RAPID TRANSIT
(DART)
EMPLOYEES' DEFINED BENEFIT RETIREMENT PLAN

ACTUARIAL VALUATION REPORT
AS OF OCTOBER 1, 2019

CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING SEPTEMBER 30, 2020

February 28, 2020

Retirement Committee
Dallas Area Rapid Transit
1401 Pacific Avenue
Dallas, TX 75201

Re: DART Employees' Defined Benefit Retirement Plan

Dear Committee Members:

We are pleased to present to the Committee this report of the annual actuarial valuation of the DART Employees' Defined Benefit Retirement Plan. Included are the related results for GASB Statements No. 67 and No. 68. The funding valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to develop the appropriate funding requirements for the applicable plan year. The calculation of the liability for GASB results was performed for the purpose of satisfying the requirements of GASB Statements No. 67 and No. 68. Use of the results for other purposes may not be applicable and may produce significantly different results.

The valuation has been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Committee, and reflects the financing objectives of the Employer, as well as applicable federal laws and regulations. In our opinion, the assumptions used in this valuation, as adopted by the Retirement Committee, represent reasonable expectations of anticipated plan experience. Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including: changes in applicable laws, changes in plan provisions, changes in assumptions, or plan experience differing from expectations. Due to the limited scope of the valuation, we did not perform an analysis of the potential range of such future measurements.

In conducting the valuation, we have relied on personnel, plan design, and asset information supplied by the DART faculty, financial reports prepared by the custodian bank, and the actuarial assumptions and methods described in the Actuarial Assumptions section of this report. While we cannot verify the accuracy of all this information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy of the information and believe that it has produced appropriate results. This information, along with any adjustments or modifications, is summarized in various sections of this report.

The total pension liability, net pension liability, and certain sensitivity information shown in this report are based on an actuarial valuation performed as of October 1, 2019. It is our opinion that the assumptions used for this purpose are internally consistent, reasonable, and comply with the requirements under GASB No. 67 and No. 68.

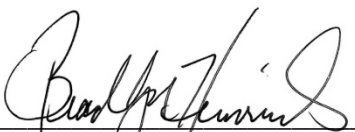
The undersigned is familiar with the immediate and long-term aspects of pension valuations and meets the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the actuarial opinions.

To our knowledge, no associate of Foster & Foster, Inc. working on valuations of the program has any direct financial interest or indirect material interest in DART, nor does anyone at Foster & Foster, Inc. act as a member of the Retirement Committee of the DART Employees' Defined Benefit Retirement Plan. Thus, there is no relationship existing that might affect our capacity to prepare and certify this actuarial report.

If there are any questions, concerns, or comments about any of the items contained in this report, please contact us at 239-433-5500.

Respectfully submitted,

Foster & Foster, Inc.

By: 
Bradley R. Heinrichs, FSA, EA, MAAA
Enrolled Actuary #17-6901

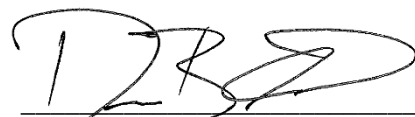

Drew D. Ballard, EA, MAAA
Enrolled Actuary #17-8193

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SUMMARY OF REPORT

The annual actuarial valuation of the DART Employees' Defined Benefit Retirement Plan, performed as of October 1, 2019, has been completed, and the results are presented in this Report. The contribution amounts developed in this valuation are applicable to the plan/fiscal year ended September 30, 2020.

The contribution requirements, compared with amounts developed in the October 1, 2018 actuarial valuation report, are as follows:

Valuation Date	10/1/2019	10/1/2018
Applicable Plan/Fiscal Yr. End	<u>9/30/2020</u>	<u>9/30/2019</u>
Minimum Required Contribution ¹ (Payable on September 30)	\$6,624,446	\$6,927,879

¹ Reflects minimum required contribution payable at end of plan year.

As can be seen, the Minimum Required Contribution has decreased by approximately \$303,400 since the previous valuation. This decrease in contribution requirements is primarily due to a larger than expected decrease in the Unfunded Actuarial Accrued Liability (UAAL) as a result of contributions in excess of the minimum required contribution. Additionally, an amortization charge base was fully paid off and there was a decrease in the Normal Cost due to a reduction in the active membership.

These sources of contribution requirement reductions were partially offset by the addition of an amortization charge base due to unfavorable actuarial experience during the year. The principal components of actuarial loss included unfavorable retirement and salary increase experience, and an investment return of 5.58% (Actuarial Asset Basis) which fell short of the 6.75% assumption.

CHANGES SINCE PRIOR VALUATION

Plan Changes

There have been no changes in benefits since the prior valuation.

Actuarial Assumption/Method Changes

The valuation reflects an update to use the most recently published mortality improvement scale by the Society of Actuaries (MP-2019).

There were no method changes since the prior valuation.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	<u>10/1/2019</u>	<u>10/1/2018</u>
A. Participant Data		
Number Included		
Actives	179	212
Service Retirees	580	570
Beneficiaries	210	206
Disability Retirees	21	20
Terminated Vested	137	141
	<hr/>	<hr/>
Total	1,127	1,149
 Total Annual Payroll	 \$12,961,798	 \$14,707,784
Payroll Under Assumed Ret. Age	12,594,032	14,257,163
 Annual Rate of Payments to:		
Service Retirees	11,318,614	10,594,751
Beneficiaries	2,281,275	2,162,763
Disability Retirees	308,287	285,095
Terminated Vested	1,209,166	1,212,659
 B. Assets		
Actuarial Value	190,481,841	185,524,973
Market Value	185,583,667	186,844,635
 C. Liabilities		
Present Value of Benefits		
Actives		
Retirement/Vested Benefits	74,277,363	83,074,632
Disability Benefits	1,003,546	1,186,184
Death Benefits	851,515	999,361
Service Retirees	126,643,335	118,119,233
Beneficiaries	21,102,179	19,673,922
Disability Retirees	3,291,289	3,078,827
Terminated Vested	13,637,729	13,149,427
	<hr/>	<hr/>
Total	240,806,956	239,281,586

	<u>10/1/2019</u>	<u>10/1/2018</u>
C. Liabilities - (Continued)		
Present Value of Future Salaries	58,254,826	69,740,995
Normal Cost (Retirement/Vesting)	847,623	976,318
Normal Cost (Disability)	31,266	36,053
Normal Cost (Death)	37,598	42,046
Total Normal Cost	<u>916,487</u>	<u>1,054,417</u>
Present Value of Future Normal Costs	4,197,829	5,105,483
Accrued Liability (Retirement/Vesting)	70,402,826	78,355,620
Accrued Liability (Disability)	858,860	1,009,849
Accrued Liability (Death)	672,909	789,225
Accrued Liability (Inactives)	<u>164,674,532</u>	<u>154,021,409</u>
Total Actuarial Accrued Liability (AL)	236,609,127	234,176,103
Unfunded Actuarial Accrued Liability (UAAL)	46,127,286	48,651,130
Funded Ratio (AVA / AL)	80.5%	79.2%
D. Actuarial Present Value of Accrued Benefits		
Accrued Benefits		
Inactives	164,674,532	154,021,409
Actives	<u>61,503,987</u>	<u>68,738,971</u>
Total (PVAB)	226,178,519	222,760,380
Funded Ratio (MVA / PVAB)	82.1%	83.9%

Valuation Date	10/1/2019	10/1/2018
Applicable to Fiscal Year Ending	<u>9/30/2020</u>	<u>9/30/2019</u>

E. Development of Actuarial Required Contribution

(1) Total Normal Cost	\$916,487	\$1,054,417
(2) Expected Employee Contributions	1,956	3,529
(3) Net Amortization Requirement	5,291,039	5,438,928
(4) Interest at Funding Rate to End of Year	<u>418,876</u>	<u>438,063</u>
(5) Minimum Required Contribution (End of Year)		
(1)-(2)+(3)+(4)	\$6,624,446	\$6,927,879
% of Covered Payroll	52.6%	48.6%

(6) Minimum Required Contribution		
a. If paid on September 30	\$6,624,446	\$6,927,879
b. If paid on April 1	\$6,415,008	\$6,708,847

RECONCILIATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES

(1)	Unfunded Actuarial Accrued Liability as of October 1, 2018	\$48,651,130
(2)	Employer Normal Cost developed as of October 1, 2018	1,050,888
(3)	Expected interest on (1) and (2)	3,354,886
(4)	Employer contributions to the System during the year ended September 30, 2019	10,000,000
(5)	Expected interest on (4)	355,993
(6)	Expected Unfunded Actuarial Accrued Liability as of September 30, 2019 (1)+(2)+(3)-(4)-(5)	42,700,911
(7)	Change to UAAL due to Actuarial (Gain)/Loss	3,426,375
(8)	Unfunded Accrued Liability as of October 1, 2019	46,127,286

MAINTENANCE SCHEDULE OF MINIMUM CONTRIBUTION AMORTIZATION BASES

Charge Bases

Type of <u>Base</u>	Date <u>Established</u>	Years <u>Remaining</u>	10/1/2019 <u>Amount</u>	Amortization <u>Amount</u>
Assum Change	10/1/2001	12	\$7,587,806	\$883,027
Actuarial Loss	10/1/2005	1	328,033	328,033
Assum Change	10/1/2005	16	247,583	24,146
Actuarial Loss	10/1/2008	4	929,319	255,564
Actuarial Loss	10/1/2009	5	4,037,071	916,180
Actuarial Loss	10/1/2010	6	233,175	45,473
Actuarial Loss	10/1/2011	7	3,469,101	597,755
VRIP Amendment	10/1/2011	22	1,366,597	113,348
Assum Change	10/1/2011	22	11,073,324	918,438
Actuarial Loss	10/1/2012	8	5,996,119	931,569
Actuarial Loss	10/1/2013	9	154,398	21,964
Method Change	10/1/2015	26	2,276,837	176,215
Assum/Method Change	10/1/2016	27	5,943,615	453,579
Actuarial Loss	10/1/2017	13	952,183	105,218
Actuarial Loss	10/1/2018	14	1,455,241	153,549
Assum Change	10/1/2018	29	4,875,819	362,897
Actuarial Loss	10/1/2019	15	<u>3,426,375</u>	<u>346,866</u>
<i>Total Charge Bases</i>			\$54,352,596	\$6,633,821

Credit Bases

Type of <u>Base</u>	Date <u>Established</u>	Years <u>Remaining</u>	10/1/2019 <u>Amount</u>	Amortization <u>Amount</u>
Actuarial Gain	10/1/2006	2	(\$368,964)	(\$190,505)
Actuarial Gain	10/1/2007	3	(1,024,974)	(364,202)
Assum Change	10/1/2012	23	(1,247,005)	(101,429)
Actuarial Gain	10/1/2014	10	(2,366,775)	(312,030)
Actuarial Gain	10/1/2015	11	(24,224)	(2,989)
Actuarial Gain	10/1/2016	12	<u>(3,193,368)</u>	<u>(371,627)</u>
<i>Total Credit Bases</i>			(\$8,225,310)	(\$1,342,782)
Net Charge			\$46,127,286	\$5,291,039

DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of October 1, 2018	\$48,651,130
(2) Expected UAAL as of October 1, 2019	42,700,911
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	2,134,106
Salary Increases	894,484
Active Decrements	874,395
Inactive Mortality	(32,752)
Mortality Improvement Update	(428,893)
Other	<u>(14,965)</u>
Increase in UAAL due to (Gain)/Loss	3,426,375
(4) Actual UAAL as of October 1, 2019	\$46,127,286

ACTUARIAL ASSUMPTIONS AND METHODS

Mortality Rate

Active Lives: PubG-2010 (Below-median, amount-weighted) employee rates with mortality improvement projections to the valuation date using Scale MP-2019.

Retiree and Vested Terminated Lives: PubG-2010 (Below-median, amount-weighted) healthy retiree rates with mortality improvement projections to the valuation date using Scale MP-2019.

Contingent Survivor Lives: PubG-2010 (Below-median, amount-weighted) contingent survivor rates with mortality improvement projections to the valuation date using Scale MP-2019.

Disabled Lives: PubG-2010 (amount-weighted) disabled retiree rates with mortality improvement projections to the valuation date using Scale MP-2019

We feel the above rates are reasonable based on the covered classification of employees in the plan. We feel that the projection of mortality rates to the valuation date is sufficient.

Previously, the mortality improvement used was MP-2018.

Interest Rate

6.75% per year compounded annually, net of all expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.

Salary Increases

3.00% per year until the assumed retirement age. The assumed rate of salary increases was approved in conjunction with an actuarial experience study performed in 2016.

Valuation Compensation

Future compensation utilized for valuation purposes is developed as the sum of:

- 1) Base pay (projected with salary increases)
- 2) Bonus pay (projected with salary increases)
- 3) Service-Incentive pay (projected assuming payment of \$6 per month of service (maximum of \$150 per month)

Payroll Growth

None

Retirement Age

<u>Age</u>	<u>Rate</u>
55	7.5%
56	5.0
57	5.0
58	10.0
59	10.0
60	10.0
61	10.0
62	25.0
63	25.0
64	25.0
65	25.0
66	25.0
67	25.0
68	25.0
69	25.0
70	100.0

The assumed rates of retirement were approved in conjunction with an actuarial experience study performed in 2016.

.Inflation / COLA

2.50% per year. This is reasonable based on long-term historical increases.

Termination Rate

1.50% per year prior to age 54, and 1.00% per year on and after attainment of age 54.

These rates were approved in conjunction with an actuarial experience study performed in 2016.

Disability Rate

Members are assumed to become disabled prior to retirement at varying rates based on age. Sample rates are as follows:

<u>Age</u>	<u>Rate</u>
45	0.06%
50	0.12
55	0.21
60	0.30

These rates were approved in conjunction with an actuarial experience study performed in 2016.

Marital Status

85% of male participants and 65% of female participants are assumed to be married. Additionally, male spouses are assumed to be three years older than female spouses.

Form of Payment

50% of participants are assumed to elect the 20% lump-sum option. 10% of participants are assumed to elect the leveling option. 40% of participants are assumed to elect neither the lump-sum nor the leveling option. The annuity elections are assumed to be as follows: 45% Life Annuity, 40% Joint and Full Survivor, 10% Joint and Fractional Survivor, 5% 10-Year Certain & Life.

Actuarial Cost Method

Entry Age Normal Actuarial Cost Method.

Actuarial Asset Method

All assets are valued at market value with an adjustment made to uniformly spread actuarial investment gains and losses (as measured by actual market value investment return against expected market value investment return) over a five-year period.

DISCUSSION OF RISK

ASOP No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

Throughout this report, actuarial results are determined using various actuarial assumptions. These results are based on the premise that all future plan experience will align with the plan's actuarial assumptions; however, there is no guarantee that actual plan experience will align with the plan's assumptions. It is possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

Below are examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions; this gain or loss is amortized over a period of time determined by the plan's amortization method. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's contribution requirements associated with plan experience. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization payment could potentially grow to an unmanageable level.

- Investment Return: When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized. Further, it is unlikely that the plan will experience a scenario that matches the assumed return in each year as capital markets can be volatile from year to year. Therefore, contribution amounts can vary in the future.
- Salary Increases: When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.
- Demographic Assumptions: Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could have occurred.

Impact of Plan Maturity on Risk

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared amongst active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on risk tolerance and the overall risk characteristics of the plan. For example, closed plans with a large amount of retired liability do not have as long of a time horizon to recover from losses (such as losses on investments due to lower than expected investment returns) as plans where the majority of the liability is attributable to active members. For this reason, less tolerance for investment risk may be warranted for highly mature closed plans with a substantial inactive liability. Similarly, mature closed plans paying substantial retirement benefits resulting in a small positive or net negative cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

To assist with determining the maturity of the plan, we have provided some relevant metrics in the table following titled “Plan Maturity Measures and Other Risk Metrics”. Highlights of this information are discussed below:

- The Support Ratio, determined as the ratio of active to inactive members, has decreased from 31.9% to 18.9% over the last four years, indicating that the plan has been maturing during the period.
- The Accrued Liability Ratio, determined as the ratio of the Inactive Accrued Liability, which is the liability associated with members who are no longer employed but are due a benefit from the plan, to the Total Accrued Liability, is 69.6%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors may result in larger increases in contribution requirements than would be needed for a less mature plan.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has increased from 76.5% to 80.5% over the last four years. If actual contributions continue to be greater than the recommended contributions in future years, the funded ratio will likely continue to increase, given that all assumptions are met.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments) to the Market Value of Assets, is -2.8%. This indicates that contributions are not currently covering the plan’s benefit payments.

It is important to note that the actuary has identified the risks in this section as the most significant risks based on the characteristics of the plan and the nature of the project, however, it is not an exhaustive list of potential risks that could be considered. Additional advanced modeling, as well as the identification of additional risks, can be helpful and can be provided upon request of the Retirement Committee.

PLAN MATURITY MEASURES AND OTHER RISK METRICS

	<u>10/1/2016</u>	<u>10/1/2017</u>	<u>10/1/2018</u>	<u>10/1/2019</u>
<u>Support Ratio</u>				
Total Actives	288	245	212	179
Total Inactives	902	918	937	948
Actives / Inactives	31.9%	26.7%	22.6%	18.9%
<u>Accrued Liability (AL) Ratio</u>				
Inactive Accrued Liability	126,272,548	139,737,361	154,021,409	164,674,532
Total Accrued Liability	220,462,402	225,254,029	234,176,103	236,609,127
Inactive AL / Total AL	57.3%	62.0%	65.8%	69.6%
<u>Funded Ratio</u>				
Actuarial Value of Assets (AVA)	168,727,902	177,697,590	185,524,973	190,481,841
Total Accrued Liability	220,462,402	225,254,029	234,176,103	236,609,127
AVA / Total Accrued Liability	76.5%	78.9%	79.2%	80.5%
<u>Net Cash Flow Ratio</u>				
Net Cash Flow ¹	(1,983,176)	(3,469,114)	(4,104,979)	(5,254,618)
Market Value of Assets (MVA)	168,333,813	180,354,549	186,844,635	185,583,667
Ratio	-1.2%	-1.9%	-2.2%	-2.8%

¹ Determined as total contributions minus benefit payments.

VALUATION NOTES

Total Annual Payroll is the annual rate of valuation compensation as of the valuation date of all covered Members.

Payroll Under Assumed Retirement Age is the annual rate of valuation compensation for all Members who are not subject to a 100% probability of retirement as of the valuation date.

Present Value of Benefits is the single sum value on the valuation date of all future benefits to be paid to current Members, Retirees, Beneficiaries, Disability Retirees and Vested Terminations.

Normal (Current Year's) Cost is determined for each participant as the present value of future benefits, determined as of the member's entry age, amortized as a level percentage of compensation over the anticipated number of years of participation, determined as of the entry age.

Individual Entry Age Normal Actuarial Cost Method (Level Percent of Compensation) is the method used to determine required contributions under the Plan. The use of this method involves the systematic funding of the Normal Cost (described above) and the Unfunded Accrued (Past Service) Liability. The actuarial accrued liability for active participants is the difference between the present value of future benefits and the present value of future Normal Costs. The actuarial accrued liability for inactive participants is the present value of future benefits.

Unfunded Actuarial Accrued Liability (UAAL) is the difference between the actuarial accrued liability (described above) and the actuarial value of assets. Under the Entry Age Normal Actuarial Cost Method, an actuarial gain or loss, based on actual versus expected UAAL, is determined in conjunction with each valuation of the plan.

STATEMENT OF FIDUCIARY NET POSITION
SEPTEMBER 30, 2019

<u>ASSETS</u>	MARKET VALUE
Total Cash and Equivalents	3,964,796
Investments:	
Fixed Income	73,050,061
Equity	88,467,841
Real Estate	20,367,226
Total Investments	181,885,128
Total Assets	185,849,924
<u>LIABILITIES</u>	
Payables:	
Accounts Payable, Expenses and Benefits	154,206
Accounts Payable, Investments in transit	112,051
Total Liabilities	266,257
NET POSITION RESTRICTED FOR PENSIONS	185,583,667

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED SEPTEMBER 30, 2019
Market Value Basis

ADDITIONS

Contributions:

Member	1,303
Employer	10,000,000

Total Contributions		10,001,303
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Investment Income:

Net Increase in Fair Value of Investments	969,810
Interest & Dividends	3,873,020
Less Investment Expense ¹	(575,530)

Net Investment Income		4,267,300
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Total Additions		14,268,603
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DEDUCTIONS

Distributions to Members:

Benefit Payments	15,255,921
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Total Distributions		15,255,921
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Administrative Expense		273,650
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Total Deductions		15,529,571
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Net Increase in Net Position		(1,260,968)
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NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year		186,844,635
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End of the Year		185,583,667
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¹Investment related expenses include investment advisory, custodial and performance monitoring fees.

ACTUARIAL ASSET VALUATION

September 30, 2019

Actuarial Assets for funding purposes are developed by recognizing the total actuarial investment gain or loss for each Plan Year over a five year period. In the first year, 20% of the gain or loss is recognized. In the second year 40%, in the third year 60%, in the fourth year 80%, and in the fifth year 100% of the gain or loss is recognized. The actuarial investment gain or loss is defined as the actual return on investments minus the actuarial assumed investment return. Actuarial Assets shall not be less than 80% nor greater than 120% of Market Value of Assets.

Plan Year Ending	Gain/Loss	<u>Gains/(Losses) Not Yet Recognized</u>				
		Amounts Not Yet Recognized by Valuation Year				
		2019	2020	2021	2022	2023
09/30/2015	(10,584,350)	0	0	0	0	0
09/30/2016	5,105,376	1,021,076	0	0	0	0
09/30/2017	4,244,400	1,697,760	848,880	0	0	0
09/30/2018	(1,440,324)	(864,194)	(576,129)	(288,064)	0	0
09/30/2019	(8,441,020)	(6,752,816)	(5,064,612)	(3,376,408)	(1,688,204)	0
Total		(4,898,174)	(4,791,861)	(3,664,472)	(1,688,204)	0

Development of Investment Gain/(Loss)

Market Value of Assets, 09/30/2018	186,844,635
Contributions Less Benefit Payments	(5,254,618)
Expected Investment Earnings*	12,434,670
Actual Net Investment Earnings	3,993,650
2019 Actuarial Investment Gain/(Loss)	(8,441,020)

*Expected Investment Earnings = $0.0675 * [186,844,635 + 0.5 * (5,254,618)]$

Development of Actuarial Value of Assets

(1) Market Value of Assets, 09/30/2019	185,583,667
(2) Gains/(Losses) Not Yet Recognized	(4,898,174)
(3) Actuarial Value of Assets, 09/30/2019, (1) - (2)	190,481,841

(A) 09/30/2018 Actuarial Assets: 185,524,973

(I) Net Investment Income:

1. Interest and Dividends	3,873,020
2. Net Increase in Fair Value of Investments	969,810
3. Change in Actuarial Value	6,217,836
4. Investment & Administrative Expenses	(849,180)
Total	10,211,486

(B) 09/30/2019 Actuarial Assets: 190,481,841

Actuarial Asset Rate of Return = $2I/(A+B-I)$: 5.58%
Market Value of Assets Rate of Return: 2.17%

Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis) (2,134,106)

10/01/2019 Limited Actuarial Assets: 190,481,841

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS
SEPTEMBER 30, 2019
Actuarial Asset Basis

REVENUES

Contributions:		
Member	1,303	
Employer	10,000,000	
Total Contributions		10,001,303
Earnings from Investments:		
Interest & Dividends	3,873,020	
Net Increase in Fair Value of Investments	969,810	
Change in Actuarial Value	6,217,836	
Total Earnings and Investment Gains		11,060,666
EXPENDITURES		
Distributions to Members:		
Benefit Payments	15,255,921	
Total Distributions		15,255,921
Expenses:		
Investment related ¹	575,530	
Administrative	273,650	
Total Expenses		849,180
Change in Net Assets for the Year		4,956,868
Net Assets Beginning of the Year		185,524,973
Net Assets End of the Year ²		190,481,841

¹Investment related expenses include investment advisory, custodial and performance monitoring fees.

²Net Assets may be limited for actuarial consideration.

STATISTICAL DATA

	<u>10/1/2016</u>	<u>10/1/2017</u>	<u>10/1/2018</u>	<u>10/1/2019</u>
<u>Actives</u>				
Number	288	245	212	179
Average Current Age	58.4	59.0	59.6	60.1
Average Age at Employment	25.1	24.7	24.5	24.3
Average Past Service	33.3	34.3	35.1	35.8
Average Annual Salary	\$65,675	\$67,716	\$69,376	\$72,412
<u>Service Retirees</u>				
Number	507	547	570	580
Average Current Age	71.9	71.7	71.6	72.0
Average Annual Benefit	\$16,756	\$17,528	\$18,587	\$19,515
<u>Beneficiaries</u>				
Number	205	201	206	210
Average Current Age	73.9	73.9	73.7	73.7
Average Annual Benefit	\$10,093	\$10,208	\$10,499	\$10,863
<u>Disability Retirees</u>				
Number	35	20	20	21
Average Current Age	67.9	66.7	67.7	68.1
Average Annual Benefit	\$12,663	\$14,011	\$14,255	\$14,680
<u>Terminated Vested</u>				
Number	155	150	141	137
Average Current Age	56.6	57.4	58.3	59.2
Average Annual Benefit	\$8,514	\$8,765	\$8,600	\$8,826

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 10/1/2018	212
b. Terminations	
i. Vested (partial or full) with deferred benefits	0
ii. Non-vested or full lump sum distribution received	0
c. Deaths	
i. Beneficiary receiving benefits	(2)
ii. No future benefits payable	0
d. Disabled	0
e. Retired	<u>(30)</u>
f. Continuing participants	180
g. Data Corrections	<u>(1)</u>
h. Total active life participants in valuation	179

2. Non-Active lives (including beneficiaries receiving benefits)

	Service Retirees, Vested Receiving <u>Benefits</u>	Receiving Death <u>Benefits</u>	Receiving Disability <u>Benefits</u>	Vested <u>Deferred</u>	<u>Total</u>
a. Number prior valuation	570	206	20	141	937
Retired	34	0	0	(4)	30
Vested Deferred	0	0	0	0	0
Death, With Survivor	(11)	14	0	(1)	2
Death, No Survivor	(12)	(11)	0	0	(23)
Disabled	0	0	1	(1)	0
QDRO	0	2	0	0	2
Rehires	0	0	0	0	0
Expired Annuities	0	(1)	0	0	(1)
Data Corrections	(1)	0	0	2	1
b. Number current valuation	580	210	21	137	948

SUMMARY OF PLAN PROVISIONS

<u>Eligibility</u>	Participants who on September 30, 1995 were covered under one of the Former Plans (DTS Employees' Retirement Plan, DTS Retirement Plan A, DTS Retirement Plan B). The current plan is closed to future new entrants.
<u>Credited Service</u>	All service as a Participant until the termination of employment.
<u>Compensation</u>	Actual or equivalent hourly base pay rate in effect on October 1 st of any year multiplied by 2,080 plus the Service-Incentive Pay (SIP) and Operator's Performance Bonus paid in that year.
<u>Final Average Compensation</u>	Average Compensation for the 3 best consecutive calendar years immediately preceding retirement or termination.
<u>Member Contributions</u>	Those electing to contribute under the Prior Plan contribute 3.0% of base pay.
<u>Normal Retirement</u>	
Date	Attainment of Age 60.
Benefit	<i>Non-Contributory Members:</i> 2.0% of Final Average Compensation per year of service through October 1, 1983 plus 1.5% of Final Average Compensation per year of service thereafter. <i>Contributory Members:</i> 2.0% of Final Average Compensation per year of service.
Form of Benefit	Actuarially equivalent 50% Joint & Contingent Survivor Annuity (married) or Life Annuity (single). Options available.
<u>Early Retirement</u>	
Date	Age 55 and 10 years of Credited Service.
Benefit	Accrued benefit, reduced 5.0% per year that the benefit commencement date precedes Age 60.

Vesting

All members are currently 100% vested in their accrued benefit. If a member terminates employment prior to retirement eligibility, the member will receive their accrued benefit payable at Early (reduced) or Normal Retirement Age.

Disability

Eligibility

Service Incurred

Covered from Date of Employment.

Non-Service Incurred

10 years of Credited Service.

Benefit

Accrued Benefit.

Death Benefits

Pre-Retirement

Eligibility

10 years of Credited Service.

Benefit

Accrued Benefit (using service assuming member continued employment to age 60) multiplied by 46.0%

Post-Retirement

Benefits payable in accordance with option selected at retirement.

COLA

Equal to the percentage increase (up or down) in the average consumer price index as of September 30, not in excess of 5% in any one year, with such excess held in reserve. The annual adjustment is payable on January 1st of each year and is based on the original annuity at commencement. In no event shall any adjustment downward result in a benefit less than that to which the member was originally entitled.

STATEMENT OF FIDUCIARY NET POSITION
SEPTEMBER 30, 2019

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Cash	3,964,796
Total Cash and Equivalents	3,964,796
 Total Receivable	 0
Investments:	
Fixed Income	73,050,061
Equity	88,467,841
Real Estate	20,367,226
Total Investments	181,885,128
Total Assets	185,849,924
 <u>LIABILITIES</u>	
Payables:	
Accounts Payable, Expenses and Benefits	154,206
Accounts Payable, Investments in transit	112,051
Total Liabilities	266,257
 NET POSITION RESTRICTED FOR PENSIONS	 185,583,667

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED SEPTEMBER 30, 2019
Market Value Basis

ADDITIONS

Contributions:

Member	1,303	
Employer	10,000,000	
Total Contributions		10,001,303
Investment Income:		
Net Increase in Fair Value of Investments	969,810	
Interest & Dividends	3,873,020	
Less Investment Expense ¹	(575,530)	
Net Investment Income		4,267,300
Total Additions		14,268,603

DEDUCTIONS

Distributions to Members:

Benefit Payments	15,255,921	
Refunds of Member Contributions	0	
Total Distributions		15,255,921
Administrative Expense		273,650
Total Deductions		15,529,571
Net Increase in Net Position		(1,260,968)
NET POSITION RESTRICTED FOR PENSIONS		
Beginning of the Year		186,844,635
End of the Year		185,583,667

¹Investment related expenses include investment advisory, custodial and performance monitoring fees.

NOTES TO THE FINANCIAL STATEMENTS

(For the Year Ended September 30, 2019)

Plan Administration

The DART Employees Defined Benefit Retirement Plan and Trust (the DB Plan) is a single employer defined benefit pension plan that was designed to provide retirement, death, and disability benefits to certain employees of DART. On October 1, 1995, the DTS Employees Retirement Plan (Plan A) was amended to become the DB Plan. Participants of the DB Plan are those employees who were members of the former plan on September 30, 1995. Those employees who elected to be covered under Plan A have eligibility, vesting, and benefit provisions different from those who elected the DB Plan. Participants who on September 30, 1995 were covered under one of the Former Plans (DTS Employees' Retirement Plan, DTS Retirement Plan A, DTS Retirement Plan B). The current plan is closed to future new entrants.

Plan Membership as of October 1, 2019:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	811
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	137
Active Plan Members	179
	<u>1,127</u>

Benefits Provided

The Plan provides retirement, termination, disability and death benefits.

A summary of the benefit provisions can be found in the October 1, 2019 Actuarial Valuation Report for the DART Employees' Defined Benefit Retirement Plan prepared by Foster & Foster Actuaries and Consultants.

Contributions

Member Contributions: Those electing to contribute under the Prior Plan contribute 3.0% of base pay.

The minimum required contribution is based upon DART's agreement to contribute an amount at least equal to the minimum funding standard under Section 412 of the Internal Revenue Code of 1986, as if the Plan were subject to Section 412, per the stipulation of the "Sale, Purchase and Transfer contract between the City of Dallas and Dallas Area Rapid Transit.

Investments

Investment Policy:

The following was the Board's adopted asset allocation policy as of September 30, 2019:

Asset Class	Target Allocation
U.S. Market Equities	39%
Global Bonds	40%
International Equities	10%
Real Estate	10%
Cash	1%
Total	100%

Concentrations:

The Plan did not hold investments in any one organization that represent 5 percent or more of the Pension Plan's Fiduciary Net Position.

Rate of Return:

For the year ended September 30, 2019, the annual money-weighted rate of return on Pension Plan investments, net of Pension Plan investment expense, was 2.32 percent.

The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

NET PENSION LIABILITY OF THE SPONSOR

(Amounts in Thousands)

The components of the Net Pension Liability of the Sponsor on September 30, 2019 were as follows:

Total Pension Liability	\$ 236,609
Plan Fiduciary Net Position	\$ (185,584)
Sponsor's Net Pension Liability	<u>\$ 51,025</u>
Plan Fiduciary Net Position as a percentage of Total Pension Liability	78.43%

Actuarial Assumptions:

The Total Pension Liability was determined by an actuarial valuation as of October 1, 2019 using the following actuarial assumptions:

Inflation	2.50%
Salary Increases	3.00%
Discount Rate	6.75%
Investment Rate of Return	6.75%

Mortality Rate Active Lives:

PubG-2010 (Below-median, amount-weighted) employee rates with mortality improvement projections to the valuation date using Scale MP-2019.

Mortality Rate Retiree and Vested Terminated Lives:

PubG-2010 (Below-median, amount-weighted) healthy retiree rates with mortality improvement projections to the valuation date using Scale MP-2019.

Mortality Rate Contingent Survivor Lives:

PubG-2010 (Below-median, amount-weighted) contingent survivor rates with mortality improvement projections to the valuation date using Scale MP-2019.

Mortality Rate Disabled Lives:

PubG-2010 (amount-weighted) disabled retiree rates with mortality improvement projections to the valuation date using Scale MP-2019.

The most recent actuarial experience study used to review the other significant assumptions was dated August 19, 2016.

The Long-Term Expected Rate of Return on Pension Plan investments can be determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Pension Plan investment expenses and inflation) are developed for each major asset class.

For 2019 the inflation rate assumption of the investment advisor was 1.90%.

These ranges are combined to produce the Long-Term Expected Rate of Return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

Best estimates of geometric real rates of return for each major asset class included in the Pension Plan's target asset allocation as of September 30, 2019 are summarized in the following table:

Asset Class	Long Term Expected Real Rate of Return ¹
U.S. Market Equities	4.4%
Global Bonds	1.4%
International Equities	5.6%
Real Estate	7.1%
Cash	-0.1%

¹ Rates are based on a 3 year outlook. The Real Estate rate is based on a 10 year outlook.

Discount Rate:
The Discount Rate used to measure the Total Pension Liability was 6.75 percent.
The projection of cash flows used to determine the Discount Rate assumed that Plan Member contributions will be made at the current contribution rate and that Sponsor contributions will be made at rates equal to the difference between actuarially determined contribution rates and the Member rate. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the Long-Term Expected Rate of Return on Pension Plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability. For purpose of this valuation, the expected rate of return on pension plan investments is 6.75%; the municipal bond rate is 3.58% (based on the weekly rate closest to but not later than the measurement date of the S&P Municipal Bond 20 Year High Grade Rate Index). The resulting single Discount Rate is 6.75%.

	Current Discount		
	1% Decrease	Rate	1% Increase
	5.75%	6.75%	7.75%
Sponsor's Net Pension Liability	\$ 74,440	\$ 51,025	\$ 30,912

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Fiscal Years
(Amounts in Thousands)

	09/30/2019	09/30/2018	09/30/2017
Total Pension Liability			
Service Cost	859	988	1,107
Interest	15,350	14,795	14,501
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	1,480	1,920	2,655
Changes of assumptions	-	5,326	-
Benefit Payments, including Refunds of Employee Contributions	(15,256)	(14,107)	(13,471)
Net Change in Total Pension Liability	2,433	8,922	4,792
Total Pension Liability - Beginning	234,176	225,254	220,462
Total Pension Liability - Ending (a)	<u>\$ 236,609</u>	<u>\$ 234,176</u>	<u>\$ 225,254</u>
Plan Fiduciary Net Position			
Contributions - Employer	10,000	10,000	10,000
Contributions - Employee	1	2	2
Net Investment Income	4,267	10,679	15,590
Benefit Payments, including Refunds of Employee Contributions	(15,256)	(14,107)	(13,471)
Administrative Expense	(274)	(84)	(100)
Net Change in Plan Fiduciary Net Position	(1,261)	6,490	12,021
Plan Fiduciary Net Position - Beginning	186,845	180,355	168,334
Plan Fiduciary Net Position - Ending (b)	<u>\$ 185,584</u>	<u>\$ 186,845</u>	<u>\$ 180,355</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 51,025</u>	<u>\$ 47,331</u>	<u>\$ 44,899</u>
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	78.43%	79.79%	80.07%
Covered Payroll	\$ 12,374	\$ 14,333	\$ 15,642
Net Pension Liability as a percentage of Covered Payroll	412.36%	330.22%	287.04%

Notes to Schedule:*Changes of assumptions:*

For measurement date 09/30/2018, the assumed rates of mortality have been amended to adopt the Pub-2010 Public Retirement Plan Mortality Tables for General Employees (Below-Median, Amount-Weighted) which were released with an exposure draft based on a comprehensive review of recent mortality experience of public retirement plans in the United States as performed by The Society of Actuaries' Retirement Plans Experience Committee.

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Fiscal Years
(Amounts in Thousands)

	09/30/2016	09/30/2015	09/30/2014 ¹
Total Pension Liability			
Service Cost	1,282	954	502
Interest	14,969	14,644	14,674
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	(2,815)	(5,082)	-
Changes of assumptions	63	-	-
Benefit Payments, including Refunds of Employee Contributions	(11,203)	(11,369)	(11,364)
Net Change in Total Pension Liability	2,296	(853)	3,812
Total Pension Liability - Beginning	218,166	219,019	215,207
Total Pension Liability - Ending (a)	<u>\$ 220,462</u>	<u>\$ 218,166</u>	<u>\$ 219,019</u>
Plan Fiduciary Net Position			
Contributions - Employer	9,217	8,706	9,122
Contributions - Employee	2	2	2
Net Investment Income	16,067	520	12,698
Benefit Payments, including Refunds of Employee Contributions	(11,203)	(11,369)	(11,364)
Administrative Expense	(218)	(219)	(415)
Net Change in Plan Fiduciary Net Position	13,866	(2,361)	10,042
Plan Fiduciary Net Position - Beginning	154,468	156,829	146,787
Plan Fiduciary Net Position - Ending (b)	<u>\$ 168,334</u>	<u>\$ 154,468</u>	<u>\$ 156,829</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 52,128</u>	<u>\$ 63,698</u>	<u>\$ 62,190</u>
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	76.36%	70.80%	71.61%
Covered Payroll	\$ 18,914	\$ 19,129	\$ 19,438
Net Pension Liability as a percentage of Covered Payroll	275.60%	332.99%	319.94%

Notes to Schedule:

¹For the 2014 Fiscal year the information was taken over from the prior actuary, Buck Consultants.

Changes of assumptions:

For measurement date 09/30/2016, amounts reported as changes of assumptions resulted from an actuarial experience study dated August 19, 2016, the Retirement Committee approved a number of changes to the actuarial assumptions and methods, as outlined below:

- The actuarial cost method was changed from The Projected Unit Credit to The Entry Age Normal actuarial cost method.
- The outdated funding method of developing the minimum required contribution as if the plan were subject to Section 412 of the Internal Revenue Code of 1986 was removed. Beginning with this valuation, the minimum required contribution will be developed to be consistent with the methodology utilized for other public pension plans.
- The assumed rate of investment return was lowered from 7.00% to 6.75% per year, net of all expenses.
- The salary increase assumption was lowered from 3.25% to 3.00% per year until the assumed retirement age.
- The assumed rates of mortality were amended to remove incorporating fully generational mortality improvements and implement projecting mortality improvements to the valuation date.
- The assumed rates of retirement were amended at certain ages.
- The assumed rates of termination were amended at certain ages and to eliminate varying rates by gender.
- The assumed rates of disablement were reduced in half.

SCHEDULE OF CONTRIBUTIONS

Last 10 Fiscal Years
(Amounts in Thousands)

Fiscal Year Ended	Actuarially Determined Contribution	Contributions in relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a percentage of Covered Payroll
09/30/2019	\$ 6,928	\$ 10,000	\$ (3,072)	\$ 12,374	80.81%
09/30/2018	\$ 7,235	\$ 10,000	\$ (2,765)	\$ 14,333	69.77%
09/30/2017	\$ 7,755	\$ 10,000	\$ (2,245)	\$ 15,642	63.93%
09/30/2016	\$ 9,217	\$ 9,217	\$ -	\$ 18,914	48.73%
09/30/2015	\$ 8,706	\$ 8,706	\$ -	\$ 19,129	45.51%
09/30/2014 ¹	\$ 9,122	\$ 9,122	\$ -	\$ 19,438	46.93%
09/30/2013	\$ 9,074	\$ 9,074	\$ -	\$ 19,467	46.61%
09/30/2012	\$ 8,045	\$ 8,045	\$ -	\$ 19,306	41.67%
09/30/2011	\$ 6,266	\$ 6,266	\$ -	\$ 23,727	26.41%
09/30/2010	\$ 6,212	\$ 6,212	\$ -	\$ 23,904	25.99%

¹For the 2014 Fiscal year and older the information was taken over from the prior actuary, Buck Consultants.

Notes to Schedule

Valuation Date: 10/01/2018

Contractually Required contribution rates are calculated as of October 1 of the fiscal year in which contributions are reported.

Methods and assumptions used to determine contribution rates:

Mortality Rate:	<p>Active Lives: PubG-2010 (Below-median, amount-weighted) employee rates with mortality improvement projections to the valuation date using Scale MP-2018.</p> <p>Retiree and Vested Terminated Lives: PubG-2010 (Below-median, amount-weighted) healthy retiree rates with mortality improvement projections to the valuation date using Scale MP-2018.</p> <p>Contingent Survivor Lives: PubG-2010 (Below-median, amount-weighted) contingent survivor rates with mortality improvement projections to the valuation date using Scale MP-2018.</p> <p>Disabled Lives: PubG-2010 (amount-weighted) disabled retiree rates with mortality improvement projections to the valuation date using Scale MP-2018</p> <p>We feel the above rates are reasonable based on the covered classification of employees in the plan. We feel that the projection of mortality rates to the valuation date is sufficient.</p>
Interest Rate:	6.75% per year compounded annually, net of all expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.
Salary Increases:	3.00% per year until the assumed retirement age. The assumed rate of salary increases was approved in conjunction with an actuarial experience study performed in 2016.
Valuation Compensation	<p>Future compensation utilized for valuation purposes is developed as the sum of:</p> <ol style="list-style-type: none"> 1) Base pay (projected with salary increases) 2) Bonus pay (projected with salary increases) 3) Service-Incentive pay (projected assuming payment of \$6 per month of service (maximum of \$150 per month)
Payroll Growth	None.

Retirement Age:

Age	Rate
55	7.5%
56	5.0%
57	5.0%
58	10.0%
59	10.0%
60	10.0%
61	10.0%
62	25.0%
63	25.0%
64	25.0%
65	25.0%
66	25.0%
67	25.0%
68	25.0%
69	25.0%
70	100.0%

The assumed rates of retirement were approved in conjunction with an actuarial experience study performed in 2016.

Inflation / COLA

2.50% per year. This is reasonable based on long-term historical increases.

Termination Rate:

1.50% per year prior to age 54, and 1.00% per year on and after attainment of age 54.

These rates were approved in conjunction with an actuarial experience study performed in 2016.

Disability Rates:

Members are assumed to become disabled prior to retirement at varying rates based on age. Sample rates are as follows:

Age	Rate
45	0.06%
50	0.12%
55	0.21%
60	0.30%

These rates were approved in conjunction with an actuarial experience study performed in 2016.

Marital Status:

85% of male participants and 65% of female participants are assumed to be married. Additionally, male spouses are assumed to be three years older than female spouses.

Form of Payment

50% of participants are assumed to elect the 20% lump-sum option. 10% of participants are assumed to elect the leveling option. 40% of participants are assumed to elect neither the lump-sum nor the leveling option. The annuity elections are assumed to be as follows: 45% Life Annuity, 40% Joint and Full Survivor, 10% Joint and Fractional Survivor, 5% 10-Year Certain & Life.

Actuarial Cost Method:

Entry Age Normal Actuarial Cost Method.

Actuarial Asset Method:

All assets are valued at market value with an adjustment made to uniformly spread actuarial investment gains and losses (as measured by actual market value investment return against expected market value investment return) over a five year period.

SCHEDULE OF INVESTMENT RETURNS
Last 10 Fiscal Years

Fiscal Year Ended	Annual Money-Weighted Rate of Return
09/30/2019	2.32%
09/30/2018	5.99%
09/30/2017	9.36%
09/30/2016	10.48%
09/30/2015	0.33%
09/30/2014 ¹	8.27%

¹For the 2014 Fiscal year the information was taken over from the prior actuary, Buck Consultants.

NOTES TO THE FINANCIAL STATEMENTS

(For the Year Ended September 30, 2020)

Plan Description

The DART Employees Defined Benefit Retirement Plan and Trust (the DB Plan) is a single employer defined benefit pension plan that was designed to provide retirement, death, and disability benefits to certain employees of DART. On October 1, 1995, the DTS Employees Retirement Plan (Plan A) was amended to become the DB Plan. Participants of the DB Plan are those employees who were members of the former plan on September 30, 1995. Those employees who elected to be covered under Plan A have eligibility, vesting, and benefit provisions different from those who elected the DB Plan.

Participants who on September 30, 1995 were covered under one of the Former Plans (DTS Employees' Retirement Plan, DTS Retirement Plan A, DTS Retirement Plan B). The current plan is closed to future new entrants.

Plan Membership as of October 1, 2019:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	811
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	137
Active Plan Members	179
	1,127

Benefits Provided

The Plan provides retirement, termination, disability and death benefits.

A summary of the benefit provisions can be found in the October 1, 2019 Actuarial Valuation Report for the DART Employees' Defined Benefit Retirement Plan prepared by Foster & Foster Actuaries and Consultants.

Contributions

Member Contributions: Those electing to contribute under the Prior Plan contribute 3.0% of base pay.

The minimum required contribution is based upon DART's agreement to contribute an amount at least equal to the minimum funding standard under Section 412 of the Internal Revenue Code of 1986, as if the Plan were subject to Section 412, per the stipulation of the "Sale, Purchase and Transfer contract between the City of Dallas and Dallas Area Rapid Transit.

Net Pension Liability

The measurement date is September 30, 2019.

The measurement period for the pension expense was October 1, 2018 to September 30, 2019.

The reporting period is October 1, 2019 through September 30, 2020.

The Sponsor's Net Pension Liability was measured as of September 30, 2019.

The Total Pension Liability used to calculate the Net Pension Liability was determined as of that date.

Actuarial Assumptions:

The Total Pension Liability was determined by an actuarial valuation as of October 1, 2019 using the following actuarial assumptions:

Inflation	2.50%
Salary Increases	3.00%
Discount Rate	6.75%
Investment Rate of Return	6.75%

Mortality Rate Active Lives:

PubG-2010 (Below-median, amount-weighted) employee rates with mortality improvement projections to the valuation date using Scale MP-2019.

Mortality Rate Retiree and Vested Terminated Lives:

PubG-2010 (Below-median, amount-weighted) healthy retiree rates with mortality improvement projections to the valuation date using Scale MP-2019.

Mortality Rate Contingent Survivor Lives:

PubG-2010 (Below-median, amount-weighted) contingent survivor rates with mortality improvement projections to the valuation date using Scale MP-2019.

Mortality Rate Disabled Lives:

PubG-2010 (amount-weighted) disabled retiree rates with mortality improvement projections to the valuation date using Scale MP-2019.

The most recent actuarial experience study used to review the other significant assumptions was dated August 19, 2016.

The Long-Term Expected Rate of Return on Pension Plan investments can be determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, Net of Pension Plan investment expenses and inflation) are developed for each major asset class.

For 2019 the inflation rate assumption of the investment advisor was 1.90%.

These ranges are combined to produce the Long-Term Expected Rate of Return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

Best estimates of geometric real rates of return for each major asset class included in the Pension Plan's target asset allocation as of September 30, 2019 are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return ¹
U.S. Market Equities	39%	4.4%
Global Bonds	40%	1.4%
International Equities	10%	5.6%
Real Estate	10%	7.1%
Cash	1%	-0.1%
Total	100%	

¹ Rates are based on a 3 year outlook. The Real Estate rate is based on a 10 year outlook.

Discount Rate:

The Discount Rate used to measure the Total Pension Liability was 6.75 percent.

The projection of cash flows used to determine the Discount Rate assumed that Plan Member contributions will be made at the current contribution rate and that Sponsor contributions will be made at rates equal to the difference between actuarially determined contribution rates and the Member rate. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the Long-Term Expected Rate of Return on Pension Plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability. For purpose of this valuation, the expected rate of return on pension plan investments is 6.75%; the municipal bond rate is 3.58% (based on the weekly rate closest to but not later than the measurement date of the S&P Municipal Bond 20 Year High Grade Rate Index). The resulting single Discount Rate is 6.75%.

CHANGES IN NET PENSION LIABILITY

(Amounts in Thousands)

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Reporting Period Ending September 30, 2019	\$ 234,176	\$ 186,845	\$ 47,331
Changes for a Year:			
Service Cost	859	-	859
Interest	15,350	-	15,350
Differences between Expected and Actual Experience	1,480	-	1,480
Changes of assumptions	-	-	-
Changes of benefit terms	-	-	-
Contributions - Employer	-	10,000	(10,000)
Contributions - Employee	-	1	(1)
Net Investment Income	-	4,267	(4,267)
Benefit Payments, including Refunds of Employee Contributions	(15,256)	(15,256)	-
Administrative Expense	-	(274)	274
Net Changes	2,433	(1,261)	3,694
Reporting Period Ending September 30, 2020	\$ 236,609	\$ 185,584	\$ 51,025

Sensitivity of the Net Pension Liability to changes in the Discount Rate.

	Current Discount		
	1% Decrease	Rate	1% Increase
	5.75%	6.75%	7.75%
Sponsor's Net Pension Liability	\$ 74,440	\$ 51,025	\$ 30,912

Pension Plan Fiduciary Net Position.

Detailed information about the pension Plan's Fiduciary Net Position is available in a separately issued Plan financial report.

**FINAL PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED
INFLOWS OF RESOURCES RELATED TO PENSIONS**
FISCAL YEAR SEPTEMBER 30, 2019
(Amounts in Thousands)

For the year ended September 30, 2019, the Sponsor has recognized a Pension Expense of \$12,309.

On September 30, 2019, the Sponsor reported Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between Expected and Actual Experience	-	-
Changes of assumptions	-	-
Net difference between Projected and Actual Earnings on Pension Plan investments	-	1,586
Employer contributions subsequent to the measurement date	10,000	-
Total	<u>\$ 10,000</u>	<u>\$ 1,586</u>

The outcome of the Deferred Outflows of resources related to pensions resulting from Employer contributions subsequent to the measurement date has been recognized as a reduction of the Net Pension Liability in the year ended September 30, 2019.

Other amounts reported as Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions will be recognized in Pension Expense as follows:

Year ended September 30:	
2020	\$ 407
2021	\$ (1,665)
2022	\$ (599)
2023	\$ 271
2024	\$ -
Thereafter	\$ -

**PRELIMINARY PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND
DEFERRED INFLOWS OF RESOURCES RELATED TO PENSIONS**

FISCAL YEAR SEPTEMBER 30, 2020

(Amounts in Thousands)

For the year ended September 30, 2020, the Sponsor will recognize a Pension Expense of \$7,574.

On September 30, 2020, the Sponsor reported Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between Expected and Actual Experience	-	-
Changes of assumptions	-	-
Net difference between Projected and Actual Earnings on Pension Plan investments	4,535	-
Employer contributions subsequent to the measurement date	TBD	-
Total	<u>TBD</u>	<u>\$ -</u>

The outcome of the Deferred Outflows of resources related to pensions resulting from Employer contributions subsequent to the measurement date will be recognized as a reduction of the Net Pension Liability in the year ended September 30, 2020.

Other amounts reported as Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions will be recognized in Pension Expense as follows:

Year ended September 30:	
2021	\$ (33)
2022	\$ 1,033
2023	\$ 1,903
2024	\$ 1,632
2025	\$ -
Thereafter	\$ -

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Fiscal Years
(Amounts in Thousands)

Reporting Period Ending Measurement Date	09/30/2020 09/30/2019	09/30/2019 09/30/2018	09/30/2018 09/30/2017
Total Pension Liability			
Service Cost	859	988	1,107
Interest	15,350	14,795	14,501
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	1,480	1,920	2,655
Changes of assumptions	-	5,326	-
Benefit Payments, including Refunds of Employee Contributions	(15,256)	(14,107)	(13,471)
Net Change in Total Pension Liability	2,433	8,922	4,792
Total Pension Liability - Beginning	234,176	225,254	220,462
Total Pension Liability - Ending (a)	<u>\$ 236,609</u>	<u>\$ 234,176</u>	<u>\$ 225,254</u>
Plan Fiduciary Net Position			
Contributions - Employer	10,000	10,000	10,000
Contributions - Employee	1	2	2
Net Investment Income	4,267	10,679	15,590
Benefit Payments, including Refunds of Employee Contributions	(15,256)	(14,107)	(13,471)
Administrative Expense	(274)	(84)	(100)
Net Change in Plan Fiduciary Net Position	(1,261)	6,490	12,021
Plan Fiduciary Net Position - Beginning	186,845	180,355	168,334
Plan Fiduciary Net Position - Ending (b)	<u>\$ 185,584</u>	<u>\$ 186,845</u>	<u>\$ 180,355</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 51,025</u>	<u>\$ 47,331</u>	<u>\$ 44,899</u>
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	78.43%	79.79%	80.07%
Covered Payroll	\$ 12,374	\$ 14,333	\$ 15,642
Net Pension Liability as a percentage of Covered Payroll	412.36%	330.22%	287.04%

Notes to Schedule:*Changes of assumptions:*

For measurement date 09/30/2018, the assumed rates of mortality have been amended to adopt the Pub-2010 Public Retirement Plan Mortality Tables for General Employees (Below-Median, Amount-Weighted) which were released with an exposure draft based on a comprehensive review of recent mortality experience of public retirement plans in the United States as performed by The Society of Actuaries' Retirement Plans Experience Committee.

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Fiscal Years
(Amounts in Thousands)

Reporting Period Ending Measurement Date	09/30/2017 09/30/2016	09/30/2016 09/30/2015	09/30/2015 09/30/2014 ¹
Total Pension Liability			
Service Cost	1,282	954	502
Interest	14,969	14,644	14,674
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	(2,815)	(5,082)	-
Changes of assumptions	63	-	-
Benefit Payments, including Refunds of Employee Contributions	(11,203)	(11,369)	(11,364)
Net Change in Total Pension Liability	2,296	(853)	3,812
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Total Pension Liability - Ending (a)	<u>\$ 220,462</u>	<u>\$ 218,166</u>	<u>\$ 219,019</u>
Plan Fiduciary Net Position			
Contributions - Employer	9,217	8,706	9,122
Contributions - Employee	2	2	2
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Benefit Payments, including Refunds of Employee Contributions	(11,203)	(11,369)	(11,364)
Administrative Expense	(218)	(219)	(415)
Net Change in Plan Fiduciary Net Position	13,866	(2,361)	10,042
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Plan Fiduciary Net Position - Ending (b)	<u>\$ 168,334</u>	<u>\$ 154,468</u>	<u>\$ 156,829</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 52,128</u>	<u>\$ 63,698</u>	<u>\$ 62,190</u>
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	76.36%	70.80%	71.61%
Covered Payroll	\$ 18,914	\$ 19,129	\$ 19,438
Net Pension Liability as a percentage of Covered Payroll	275.60%	332.99%	319.94%

Notes to Schedule:

¹For the 2014 Fiscal year the information was taken over from the prior actuary, Buck Consultants.

Changes of assumptions:

For measurement date 09/30/2016, amounts reported as changes of assumptions resulted from an actuarial experience study dated August 19, 2016, the Retirement Committee approved a number of changes to the actuarial assumptions and methods, as outlined below:

- The actuarial cost method was changed from The Projected Unit Credit to The Entry Age Normal actuarial cost method.
- The outdated funding method of developing the minimum required contribution as if the plan were subject to Section 412 of the Internal Revenue Code of 1986 was removed. Beginning with this valuation, the minimum required contribution will be developed to be consistent with the methodology utilized for other public pension plans.
- The assumed rate of investment return was lowered from 7.00% to 6.75% per year, net of all expenses.
- The salary increase assumption was lowered from 3.25% to 3.00% per year until the assumed retirement age.
- The assumed rates of mortality were amended to remove incorporating fully generational mortality improvements and implement projecting mortality improvements to the valuation date.
- The assumed rates of retirement were amended at certain ages.
- The assumed rates of termination were amended at certain ages and to eliminate varying rates by gender.
- The assumed rates of disablement were reduced in half.

SCHEDULE OF CONTRIBUTIONS

Last 10 Fiscal Years
(Amounts in Thousands)

Fiscal Year Ended	Actuarially Determined Contribution	Contributions in relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a percentage of Covered Payroll
09/30/2019	\$ 6,928	\$ 10,000	\$ (3,072)	\$ 12,374	80.81%
09/30/2018	\$ 7,235	\$ 10,000	\$ (2,765)	\$ 14,333	69.77%
09/30/2017	\$ 7,755	\$ 10,000	\$ (2,245)	\$ 15,642	63.93%
09/30/2016	\$ 9,217	\$ 9,217	\$ -	\$ 18,914	48.73%
09/30/2015	\$ 8,706	\$ 8,706	\$ -	\$ 19,129	45.51%
09/30/2014 ¹	\$ 9,122	\$ 9,122	\$ -	\$ 19,438	46.93%
09/30/2013	\$ 9,074	\$ 9,074	\$ -	\$ 19,467	46.61%
09/30/2012	\$ 8,045	\$ 8,045	\$ -	\$ 19,306	41.67%
09/30/2011	\$ 6,266	\$ 6,266	\$ -	\$ 23,727	26.41%
09/30/2010	\$ 6,212	\$ 6,212	\$ -	\$ 23,904	25.99%

¹For the 2014 Fiscal year and older the information was taken over from the prior actuary, Buck Consultants.

Notes to Schedule

Valuation Date: 10/01/2018

Contractually Required contribution rates are calculated as of October 1 of the fiscal year in which contributions are reported.

Methods and assumptions used to determine contribution rates:

Mortality Rate:	Active Lives: PubG-2010 (Below-median, amount-weighted) employee rates with mortality improvement projections to the valuation date using Scale MP-2018. Retiree and Vested Terminated Lives: PubG-2010 (Below-median, amount-weighted) healthy retiree rates with mortality improvement projections to the valuation date using Scale MP-2018. Contingent Survivor Lives: PubG-2010 (Below-median, amount-weighted) contingent survivor rates with mortality improvement projections to the valuation date using Scale MP-2018. Disabled Lives: PubG-2010 (amount-weighted) disabled retiree rates with mortality improvement projections to the valuation date using Scale MP-2018 We feel the above rates are reasonable based on the covered classification of employees in the plan. We feel that the projection of mortality rates to the valuation date is sufficient.
Interest Rate:	6.75% per year compounded annually, net of all expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.
Salary Increases:	3.00% per year until the assumed retirement age. The assumed rate of salary increases was approved in conjunction with an actuarial experience study performed in 2016.
Valuation Compensation	Future compensation utilized for valuation purposes is developed as the sum of: 1) Base pay (projected with salary increases) 2) Bonus pay (projected with salary increases) 3) Service-Incentive pay (projected assuming payment of \$6 per month of service (maximum of \$150 per month)
Payroll Growth	None.

GASB 68

Retirement Age:	Age	Rate
	55	7.5%
	56	5.0%
	57	5.0%
	58	10.0%
	59	10.0%
	60	10.0%
	61	10.0%
	62	25.0%
	63	25.0%
	64	25.0%
	65	25.0%
	66	25.0%
	67	25.0%
	68	25.0%
	69	25.0%
	70	100.0%

The assumed rates of retirement were approved in conjunction with an actuarial experience study performed in 2016.

Inflation / COLA 2.50% per year. This is reasonable based on long-term historical increases.

Termination Rate: 1.50% per year prior to age 54, and 1.00% per year on and after attainment of age 54. □

These rates were approved in conjunction with an actuarial experience study performed in 2016.

Disability Rates: Members are assumed to become disabled prior to retirement at varying rates based on age. Sample rates are as follows:

Age	Rate
45	0.06%
50	0.12%
55	0.21%
60	0.30%

These rates were approved in conjunction with an actuarial experience study performed in 2016.

Marital Status: 85% of male participants and 65% of female participants are assumed to be married. Additionally, male spouses are assumed to be three years older than female spouses.

Form of Payment 50% of participants are assumed to elect the 20% lump-sum option. 10% of participants are assumed to elect the leveling option. 40% of participants are assumed to elect neither the lump-sum nor the leveling option. The annuity elections are assumed to be as follows: 45% Life Annuity, 40% Joint and Full Survivor, 10% Joint and Fractional Survivor, 5% 10-Year Certain & Life.

Actuarial Cost Method: Entry Age Normal Actuarial Cost Method.

Actuarial Asset Method: All assets are valued at market value with an adjustment made to uniformly spread actuarial investment gains and losses (as measured by actual market value investment return against expected market value investment return) over a five year period.

EXPENSE DEVELOPMENT AND AMORTIZATION SCHEDULES

The following information is not required to be disclosed but is provided for informational purposes.

FINAL COMPONENTS OF PENSION EXPENSE
FISCAL YEAR SEPTEMBER 30, 2019
(Amounts in Thousands)

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Reporting Period Ending September 30, 2018	\$ 44,899	\$ 7,180	\$ 15,471	\$ -
Employer contributions made after 09/30/2018			\$ 10,000	
Total Pension Liability Factors:				
Service Cost	988	-	-	988
Interest	14,795	-	-	14,795
Changes in benefit terms	-	-	-	-
Differences between Expected and Actual Experience with regard to economic or demographic assumptions	1,920	-	1,920	-
Current year amortization of experience difference	-	-	(3,248)	3,248
Change in assumptions about future economic or demographic factors or other inputs	5,326	-	5,326	-
Current year amortization of change in assumptions	-	-	(5,326)	5,326
Benefit Payments, including Refunds of Employee Contributions	(14,107)	-	-	-
Net change	8,922	-	8,672	24,357
Plan Fiduciary Net Position:				
Contributions - Employer	10,000	-	(10,000)	-
Contributions - Employee	2	-	-	(2)
Projected Net Investment Income	12,033	-	-	(12,033)
Difference between projected and actual earnings on Pension Plan investments	(1,354)	-	1,354	-
Current year amortization	-	(2,438)	(2,341)	(97)
Benefit Payments, including Refunds of Employee Contributions	(14,107)	-	-	-
Administrative Expenses	(84)	-	-	84
Net change	6,490	(2,438)	(10,987)	(12,048)
Reporting Period Ending September 30, 2019	\$ 47,331	\$ 4,742	\$ 13,156	\$ 12,309

PRELIMINARY COMPONENTS OF PENSION EXPENSE
FISCAL YEAR SEPTEMBER 30, 2020
(Amounts in Thousands)

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Reporting Period Ending September 30, 2019	\$ 47,331	\$ 4,742	\$ 13,156	\$ -
Employer contributions made after 09/30/2019			TBD*	
Total Pension Liability Factors:				
Service Cost	859	-	-	859
Interest	15,350	-	-	15,350
Changes in benefit terms	-	-	-	-
Differences between Expected and Actual Experience with regard to economic or demographic assumptions	1,480	-	1,480	-
Current year amortization of experience difference	-	-	(1,480)	1,480
Change in assumptions about future economic or demographic factors or other inputs	-	-	-	-
Current year amortization of change in assumptions	-	-	-	-
Benefit Payments, including Refunds of Employee Contributions	(15,256)	-	-	-
Net change	2,433	-	-	17,689
Plan Fiduciary Net Position:				
Contributions - Employer	10,000	-	(10,000)	-
Contributions - Employee	1	-	-	(1)
Projected Net Investment Income	12,425	-	-	(12,425)
Difference between projected and actual earnings on Pension Plan investments	(8,158)	-	8,158	-
Current year amortization	-	(1,936)	(3,973)	2,037
Benefit Payments, including Refunds of Employee Contributions	(15,256)	-	-	-
Administrative Expenses	(274)	-	-	274
Net change	(1,262)	(1,936)	(5,815)	(10,115)
Reporting Period Ending September 30, 2020	\$ 51,025	\$ 2,806	TBD	\$ 7,574

* Employer Contributions subsequent to the measurement date made after September 30, 2019 but made on or before September 30, 2020 need to be added.

AMORTIZATION SCHEDULE - INVESTMENTS

(Amounts in Thousands)

Increase (Decrease) in Pension Expense Arising from the Recognition of the of Differences Between Projected and Actual Earnings on Pension Plan Investments

Plan Year Ending	Differences Between Projected and Actual Earnings	Recognition Period (Years)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2019	\$ 8,158	5	\$ -	\$ 1,630	\$ 1,632	\$ 1,632	\$ 1,632	\$ 1,632	\$ -	\$ -	\$ -	\$ -	\$ -
2018	\$ 1,354	5	\$ 270	\$ 271	\$ 271	\$ 271	\$ 271	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ (4,348)	5	\$ (870)	\$ (870)	\$ (870)	\$ (870)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ (5,332)	5	\$ (1,066)	\$ (1,066)	\$ (1,066)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2015	\$ 10,357	5	\$ 2,071	\$ 2,072	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2014	\$ (2,514)	5	\$ (502)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ (97)	\$ 2,037	\$ (33)	\$ 1,033	\$ 1,903	\$ 1,632	\$ -	\$ -	\$ -	\$ -	\$ -

AMORTIZATION SCHEDULE - CHANGES OF ASSUMPTIONS
(Amounts in Thousands)

			Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions										
Plan Year Ending	Changes of Assumptions	Recognition Period (Years)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2018	\$ 5,326	1	\$ 5,326	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 5,326	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

AMORTIZATION SCHEDULE - EXPERIENCE

(Amounts in Thousands)

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience

Plan Year Ending	Differences Between Expected and Actual Experience	Recognition Period (Years)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2019	\$ 1,480	1	\$ -	\$ 1,480	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2018	\$ 1,920	1	\$ 1,920	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ 2,655	2	\$ 1,328	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 3,248	\$ 1,480	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

CBIZ Investment Advisory Services, LLC
Investment Committee, Research Structure, and Analyst Team

