

CONNECTICUT COMMISSION
ON FISCAL STABILITY AND
ECONOMIC GROWTH

FINAL REPORT
MARCH 2018



State of Connecticut

Robert Patricelli
Co-Chair



James Smith
Co-Chair

COMMISSION ON FISCAL STABILITY AND ECONOMIC GROWTH
LEGISLATIVE OFFICE BUILDING, ROOM 3700
Hartford, Connecticut 06106-1591

March 1, 2018

Governor Malloy, the Legislative Caucus Leaders, and the Chairs and Ranking Members of the Committees of Cognizance:

Pursuant to Section 250 of PA 17-2, it is our pleasure to submit to you the report of the Commission on Fiscal Stability and Economic Growth.

While we knew upon undertaking this work that the state faced considerable problems, we now understand that they are even deeper and more urgent than we knew. There is still a solid foundation and much that is attractive about Connecticut, but we have deeply embedded budget imbalances, unfunded liabilities that exceed \$100 billion if properly computed, flat economic growth in contrast to gains in states around us, and declining population in key demographic segments. The good news is that the situation is fixable if we take bold action. We are optimistic about the future, but only if our governmental leaders and the entire General Assembly share our assessment of the situation and are willing to take immediate action.

We are presenting you with a bold "Plan for Connecticut" that we believe is comprehensive and balanced. It will get us on the road to recovery, both in terms of budget stability and economic growth. Notwithstanding the abbreviated session this year, we believe that you have ample time to consider and enact the key elements of this plan. We must emphasize the conditional linkage among the Commission's recommendations. Speaking for all the members of the Commission, we are grateful for having had this opportunity to serve our cherished state, and we stand ready to testify and cooperate further in any way that would be useful.

Sincerely,

Handwritten signature of Robert E. Patricelli in black ink.

Robert E. Patricelli
Co-Chair

Handwritten signature of James C. Smith in black ink.

James C. Smith
Co-Chair

[Attachment]

THE COMMISSION WILL DELIVER RECOMMENDATIONS BY MARCH 1ST

The Commission was formed by Connecticut budget PA 17-2 Section 250

“Develop and recommend policies to achieve state government fiscal stability and promote economic growth and competitiveness...to (1) achieve consistently balanced and timely budgets that are supportive of the interests of families and businesses and the revitalization of major cities within the state, and (2) materially improve the attractiveness of the state for existing and future businesses and residents.”



Bob Patricelli (Co-chair and Municipal Aid Leader)
Former Chairman and CEO, Women's Health USA, Value Health, Evolution Benefits



Greg Butler
Executive VP and General Counsel, Eversource Energy



Jim Smith (Co-chair and Fiscal Stability Leader)
Chairman and Former CEO, WebsterBank



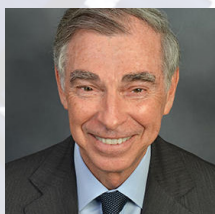
Roxanne Coady
President and Owner, R.J. Julia Booksellers; Chair, Read to Grow, Inc.



Pat Widlitz (Vice-chair)
Former Co-chair of CT Legislature House Financing, Revenue and Bonding Committee



Eneas Freyre
Agent, New York Life Insurance Company



Bruce Alexander (cities & Transportation Leader)
VP of New Haven and State Affairs, Yale University



David Jimenez
Principal, Jackson Lewis P.C.; Member, CT Board of Regents for Higher Education



Frank Alvarado
Veterans Affairs Officer, Small Business Administration, CT District



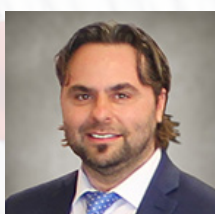
Jim Loree (Competitiveness & Growth Leader)
President and CEO, Stanley Black & Decker



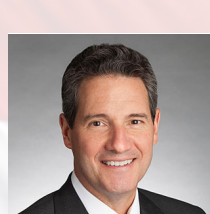
Cindi Bigelow
President and CEO, Bigelow Tea



Paul Mounds Jr.
VP for Communications and Policy, CT Health Foundation



Michael Barbaro
President, CT Realtors



Christopher Swift
Chairman and CEO, The Hartford

CT HAS A LONG LEGACY OF INNOVATION AND GREAT HUMAN CAPITAL

Pratt and Whitney and Electric Boat made major contributions to the Allied war effort

1945



1939

While living in Connecticut, Igor Sikorsky designed and piloted the first helicopter in the United States

Connecticut businessman and chemist Charles Goodyear invented the process for vulcanizing rubber

1844

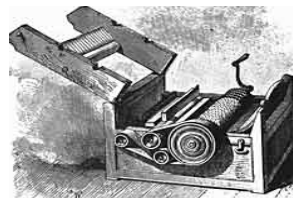


1832

Quaker teacher Prudence Crandall created 1st integrated schoolhouse

Connecticut resident Eli Whitney invented the cotton gin, leading the way into the industrial revolution

1794



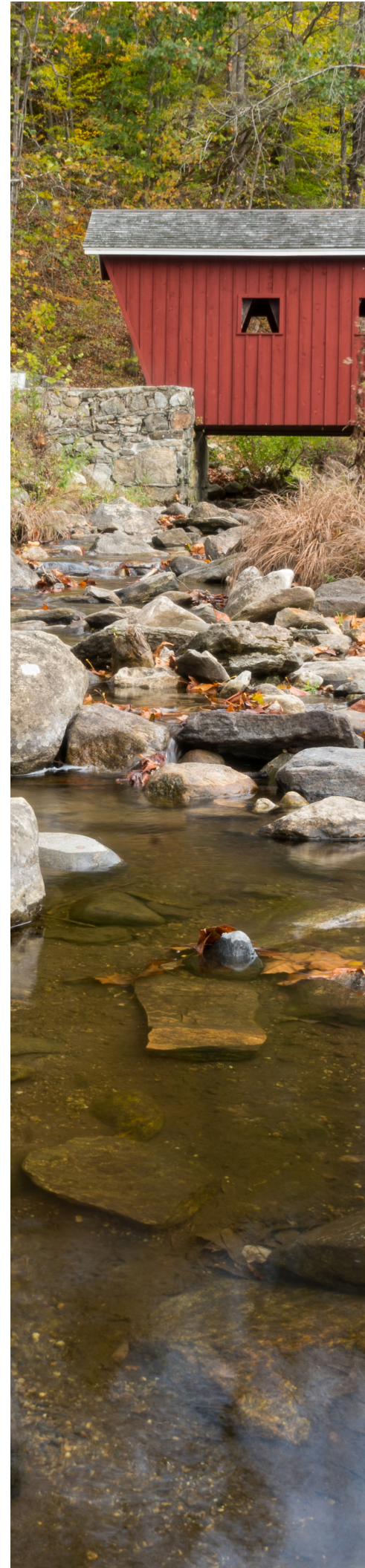
1701

Yale University is the third oldest university in the United States



CT forefathers drafted "Fundamental Orders," becoming the first colony to adopt its own Constitution

1639



EXECUTIVE SUMMARY



EXECUTIVE SUMMARY

PA 17-2 at Sec. 250 established a Commission on Fiscal Stability and Economic Growth to develop and recommend policies to achieve state government fiscal stability and promote economic growth and competitiveness within the state. The 14 private citizens appointed to the Commission present these recommendations based on a sober recognition that Connecticut is in quiet crisis by every measure: consistent budget imbalances, growing unfunded liabilities, falling bond ratings, stagnant economic growth, competitive disadvantages compared to neighboring states on most important indices, and increasing outmigration.

The legislature must act, and we believe it wants to do so. The legislature needs a plan, and we are presenting one that we believe can appeal to all segments and build a stronger and more prosperous future for Connecticut. Through our hearings and many conversations across the state, we believe there will be support for this plan. The time to act is now.

KEY FINDINGS:

- While neighboring states and the United States as a whole have economies that are growing, our economy is shrinking—it is actually smaller than it was in 2004;
- We are losing ground on numerous key measures of competitiveness: tax climate, business climate, transportation quality, vitality of cities, and more;
- We are facing ongoing budget deficits of \$2 billion - \$3 billion in FY 2020 and beyond, growing by \$500 million per year.

State government's fiscal instability is itself a root cause of our poor economic growth because it leads to a lack of confidence by the business community and among state residents. Reigniting economic growth requires Connecticut to regain fiscal stability. The Commission's recommendations offer a roadmap for legislative action starting this session. This plan will not improve the situation overnight, but it does put Connecticut on a sustainable path.

KEY RECOMMENDATIONS

In this report, the Commission will propose ten major recommendations:

1. Enact a revenue neutral rebalancing of state taxes (which becomes revenue positive when coupled with economic growth) that reduces income taxes in every bracket, selectively raises taxes on business, raises the sales tax rate by less than 1%, cuts exemptions and exclusions from all taxes by 14%, eliminates the dwindling estate and gift taxes, and increase the minimum wage.
2. Create a Joint Budget Committee of the legislature with the power to set limits on revenues and expenses.
3. Have the legislature assume the responsibility to define state employee fringe benefits by removing them from collective bargaining for new contracts.
4. Amend binding arbitration laws to permit compromise awards.
5. Develop and implement a plan to cut \$1 billion out of annual operating expenses.
6. Reform the Teachers' Retirement System to lower costs and to make it sustainable by paying down unfunded liabilities.
7. Raise the gas tax to fund transportation projects and produce a plan for eventual implementation of electronic tolls.
8. Reinvest in cities and build a major new STEM campus in one city in partnership with a major research university.
9. Undertake a series of growth initiatives, led by the executive branch, with the funding and support from the legislature to (1) develop and retain the workforce Connecticut needs, (2) support the growth of Connecticut's highest-potential economic sectors and (3) transform the business environment for entrepreneurship and innovation.
10. Diversify municipal revenue streams beyond the regressive property tax and stimulate regional service delivery.

The Commission also proposes linkage in the phasing of several of these proposals to ensure balance across all sectors for the above recommendations.

SUMMARY OF TAXES, SPENDING AND INVESTMENTS

TAX REFORM

Our tax reform proposal is based on re-balancing the income tax, sales tax, and business taxes—by approximately \$2.3 billion in total when fully implemented:

- **Personal Income Tax:** Dramatically reduce personal income tax rates, phased in over three years starting in FY 2020, by 18% in the top bracket (from 6.99% to 5.75%), by similar or greater amounts in lower brackets, and to zero for incomes below \$10,000. Reduced by \$2.1 billion when fully implemented in 2023.
- **Sales Tax:** Starting in FY 2020, increase the sales tax rate from 6.35% to 7.25% to help balance the loss of revenue from the income tax reduction (adding \$1.0 billion). Connecticut is currently quite low- 41st in the nation-in terms of sales tax burden as a percent of total personal income.
- **Corporation Tax:** Increase business taxes starting in FY 2020 by approximately \$475 million as a target. This would be accomplished by adding a tiered payroll tax of 0.8% on payrolls, but with a full credit (exemption) for the first nine employees, and a half credit for the next 10 through 99 employees.
- **Exemptions:** Starting in FY 2020, eliminate a significant proportion of the current “tax expenditures” (exemptions and deductions) that have proliferated over the years in connection with the sales tax, the income tax, the corporation tax, and a variety of special purpose taxes. We recommend removal of approximately 14% of the value of these exemptions in order to produce additional sales tax and other revenues on the order of \$750 million per year.
- **Estate and Gift Taxes:** These taxes should be repealed effective immediately.
- **Increase the Minimum Wage:** While not a tax proposal, Connecticut should increase its statutory minimum wage in annual steps from the current \$10.10 to \$15 per hour by 2022 to help address the issue of income disparity.
- **Provide Municipalities With Authority:** Allow municipalities to raise fees and an additional 0.5% sales tax to augment the existing property tax system. This new sales tax authority should be tied to policies promoting regional service delivery at the local level.

SPENDING

- More effectively control state spending by establishing a Joint Budget Committee with responsibility for the establishment of revenue and spending policy. The current two-committee process lacks coherence and favors over-spending.
- Join the large majority of states that vest the power to determine pension and retiree health benefit formulas and funding policies for state employees with the legislature, rather than in collective bargaining.
- Immediately address the unsustainable burden of the Teachers' Retirement System (TRS) and the state Employee Retirement System (SERS) unfunded liabilities.
- Create a cost-management initiative within the executive branch that will produce savings of at least \$1 billion annually.

INVESTMENTS IN TRANSPORTATION AND CITIES

Connecticut must invest in transportation and provide a stable funding source to pay for transportation investments that cannot be raided by the legislature for non-transportation expenditures. Priorities include: congestion-reducing highway improvements, higher speed rail service from Hartford, New Haven and Stamford to New York City, improved service at Bradley International Airport, repeal legislation limiting runway length at Tweed Airport and investment in Connecticut's deep-water ports.

With respect to central cities, the Commission recommends **the expansion of the Capital Region Economic Development Authority** model in two additional cities, and enhanced funding of the Payment in Lieu of Taxes (PILOT) program for state owned property in the state's largest cities.

ECONOMIC GROWTH

Undertake a series of growth initiatives, led by the executive branch, with the funding and support from the legislature to (1) develop and retain the workforce Connecticut needs, (2) support the growth of Connecticut's highest-potential economic sectors and (3) transform the business environment for entrepreneurship and innovation. As part of this growth investment,

the Commission **recommends the creation of a new, nationally competitive Science, Technology, Engineering and Math (STEM) campus** in Hartford, New Haven or Stamford, following the Roosevelt Island model in New York City. The objective should be to recruit a major research university through a request for proposal (RFP) process to partner in the project.

LINKAGE

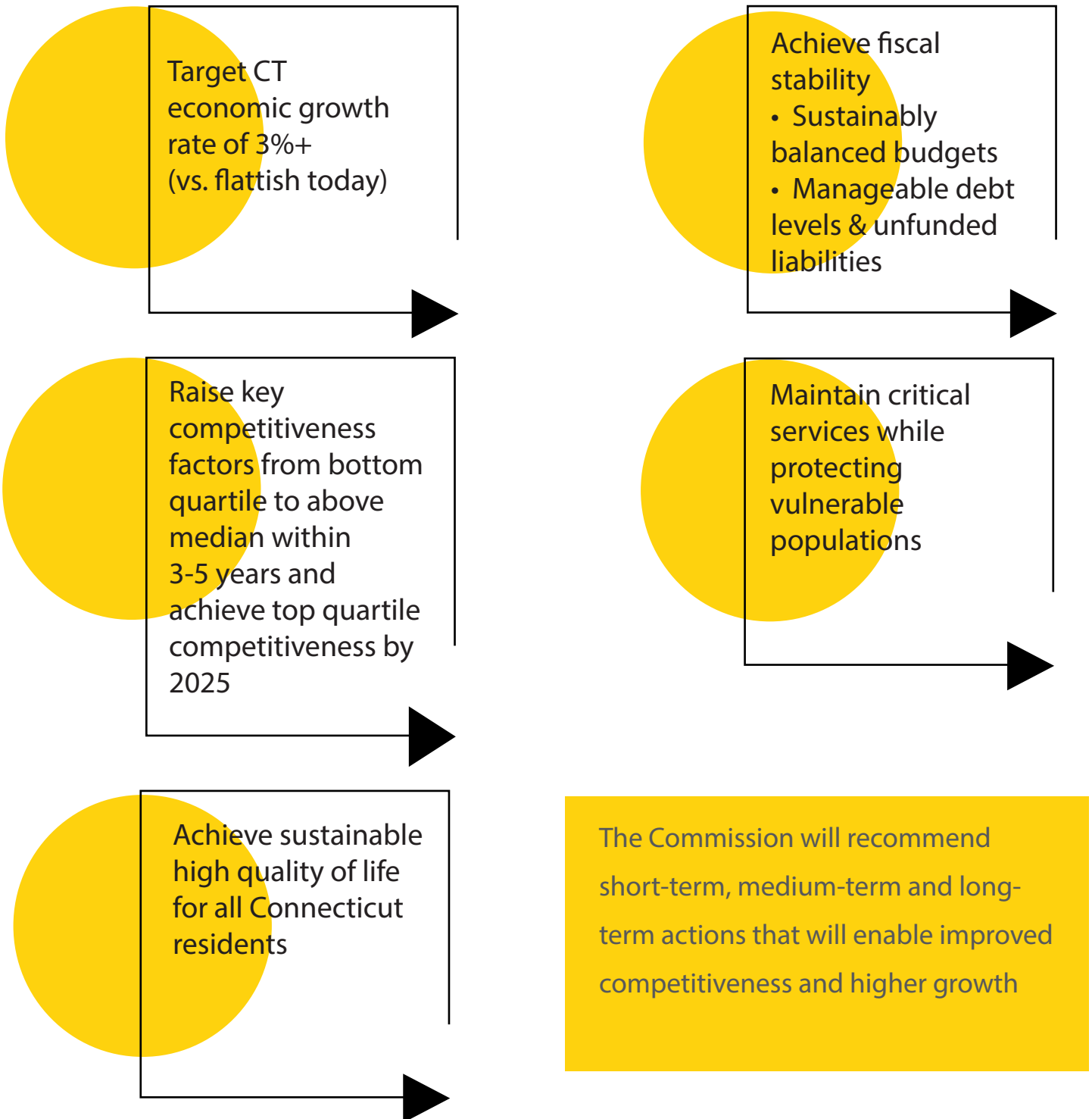
Implementation of several of these measures must be closely linked to the enactment or executive branch achievement of others. For example, while the tax changes would be enacted in 2018, their implementation at the July 2019 start of FY 2020 would be conditioned upon enactment in 2018 of the proposed changes in state employee collective bargaining and binding arbitration, and the submission by the executive branch of specific proposals to reduce core spending by \$1 billion before July 1, 2019.

BUDGET IMPACT

The Commission's economic model suggests that the plan for Connecticut will produce balanced General Fund budgets through the next biennium (FY 2021). If the plan is successful in raising rates of economic growth and tax revenues by FY 2022 and beyond or if further cost saving measures are taken, those balanced budgets can be sustainable.

A "STRAWMAN" VISION/GOALS OF CT

A long-term vision is required to propel our state back to greatness...



Vision and goals are not mere verbiage and platitudes. They translate into a social and political compact among interest groups. For example, business needs to be committed to a fair deal with labor, and labor needs to be committed to fiscal stability and economic growth. The towns and their elected representatives who control the legislature must be committed to building vital cities, which is a prerequisite to getting more companies to start, move and stay in Connecticut to generate the economic growth that will lead to increased state tax revenue to help all the towns. Connecticut and its representatives need to sign up to a common vision and goals, not a zero sum game of “we win, you lose”.

Beyond vision/goals, key principles have guided the formation of our recommendations.

We must:

- Be sensitive to, but not intimidated by, political repercussions—in fact, we may serve a useful purpose for political leaders by helping to “carry some of the water” for conventionally unpopular ideas;
- Be bold—the state is in dire straits, the time for half measures is behind us;
- Be fair—if there is sacrifice, it must be shared;
- Any increased spending must be balanced by spending cuts—at least until growth dividends kick in;
- Be focused—let’s get the big picture and the important things right and not get distracted by small issues, past arguments, and special interests;
- Produce some quick wins to achieve fiscal stability and re-inspire economic growth and wealth retention.

CONNECTICUT'S COMPETITIVENESS



CONNECTICUT'S COMPETITIVENESS

The legislation establishing the Commission on Fiscal Stability and Economic Growth (the "Commission") was signed into law as Public Act 17-2 on October 31, 2017 as part of the bipartisan budget bill. The legislative charge to the Commission was ambitious, to:

"Develop and recommend policies to achieve state government fiscal stability and promote economic growth and competitiveness....to (1) achieve consistently balanced and timely budgets that are supportive of the interests of families and businesses and the revitalization of major cities within the state, and (2) materially improve the attractiveness of the state for existing and future businesses and residents."

In doing our work we have been laser focused on our twin and closely interrelated goals of fiscal stability and economic growth. We also decided to employ the concept of "competitiveness" as our primary criterion for measuring our current status and any proposals. A related test is the measure of a program's "affordability". If a current or proposed program is not affordable within current revenues, it could undermine the fiscal stability Connecticut needs as a pre-condition to creating sustainable economic growth.

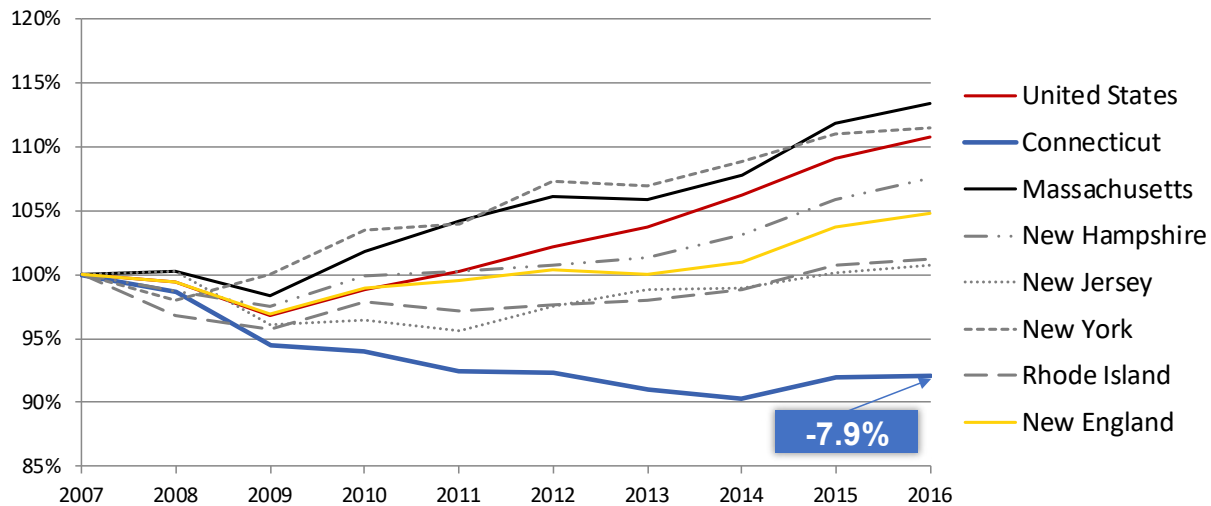
Connecticut has reached a crossroads. Its strengths – a highly educated workforce, strong industry clusters, a legacy of innovation, and a high quality of life – once made it a competitive and economically growing powerhouse, attracting successful new residents and productive businesses from near and far.

Competitiveness measures the preconditions for economic growth with sustainably high levels of per capita income (i.e. what it takes to attract and retain highly mobile businesses and families)...

...and **creates the enabling environment** for workers to be productive and residents to enjoy a high quality of life

The hard fact is that Connecticut's economy, measured by Gross State Product (GSP), has actually declined since 2007 - in stark contrast to neighboring states and the US as a whole.

INDEXED REAL GDP BY STATE (MILLIONS OF CHAINED 2009 DOLLARS)



Source: Bureau of Economic Analysis, Gross State Product

The economic reality has changed: many of the state's talented people and growing businesses are decamping for other parts of the US. Connecticut's competitiveness rankings are declining and are generally bottom quartile when compared to peers as measured by the various reports published that evaluate livability and business climates across the nation.

To regain its stature and attract more talent and industry, Connecticut must improve in many areas at once, given their interconnectedness.

Among our findings are:

- Fiscal Stability:** Connecticut's fiscal stability has deteriorated to crisis levels, eroding general public and business confidence. Fiscal stability is a condition precedent to competitiveness. State expenditures have been growing at a rate exceeding revenue growth since the Great Recession. At the same time, ballooning fixed costs related to rising debt and unfunded liability levels have crowded out infrastructure investments and discretionary spending line items for education, transportation, aid for the vulnerable, and other important government services and programs.

- **Tax Policy:** Connecticut's tax policy is not as competitive as it needs to be with its neighboring states, and is overly volatile with a high dependence on levels of personal income and capital gains.
- **Business Competitiveness**
 - **Talent and Human Capital:** Connecticut's workforce is shrinking as the population ages and outmigration rises. While many residents are highly skilled today, the state is not educating and retaining enough of its students for the 21st-century labor market. The state is already struggling to match existing talent with job openings. Educated and highly skilled residents are leaving faster than the state can replace them.
 - **Innovation and Entrepreneurship:** While the state leads the nation in many measures of technical innovation, it has not converted enough ideas into new businesses, leaving the state with an increasing reliance on older and larger companies.
 - **Ease and Cost of Doing Business:** Starting and running a business in the state presents many challenges, including regulations¹ and high costs in general, such as high cost for labor, electricity prices and other critical business expenses.
 - **Sectors and Clusters:** Among Connecticut's largest and most important sectors are healthcare, finance, and manufacturing.² Large companies in these sectors and small and mid-sized start-ups, suppliers and other companies in the ecosystem form mutually beneficial networks which must be enhanced.
- **Transportation and Infrastructure:** Connecticut lacks reliable funding sources to invest in needed infrastructure repairs and upgrades. Deferred upgrades to roads and bridges could result in future safety concerns, and funding for transportation initiatives that would enhance competitiveness is inadequate. Commute times for the state's workers are above average and growing.³ Public transportation options for those outside of metro areas are limited.
- **Quality of Life:** While residents overall enjoy a high quality of life, there is a significant imbalance between those in the suburbs and those in the cities. In this regard, Connecticut's cities face significant issues, including a high level of inequality, unfunded pensions and deterioration in other fiscal conditions. As a result, Connecticut cities do not provide vibrant urban cores that are critical to the state's economic growth and well-being.

1 Connecticut is ranked 43rd nationwide by small businesses on friendliness of regulations according to the Thumbtack Small Business Survey

2 Connecticut has a high location quotient in all three sectors, meaning the proportion of Connecticut's employment coming from all three is higher than the national average

3 Connecticut ranks 36th in the US on commute times according to the American Community survey

Competitiveness matters because in an increasingly transparent and mobile world it has become easier for people and firms to make highly informed decisions about where to live, work and hire. Countries, states and cities must do more than ever to compete for the talent, ideas, investment and other resources that are the foundations of economic growth and high standards of living.

A competitive state creates an environment that helps businesses and workers be productive and where residents enjoy a high quality of life. A competitive state has a compelling value proposition that attracts and retains highly mobile businesses and families. While certain features, such as good schools and roads, reliably attract companies and people, competitiveness is not an exact science. Families' and companies' decisions about relocating are highly complex and variable.

Many researchers study state competitiveness. Their findings, found in publications such as the Beacon Hill Annual State Competitiveness Report, the US News state rankings, and the Connecticut Economic Resource Center's Economic Review consider a range of elements to describe each state's overall competitive position. We present below a chart that summarizes Connecticut's standing in terms of attractiveness to business compared to nearby states and others against whom it competes. It is clear Connecticut needs to improve its standings.

STATE OVERALL COMPETITIVENESS INDICES



1 = best state,
50 worst



TOP 15



MID 20



BOTTOM 15

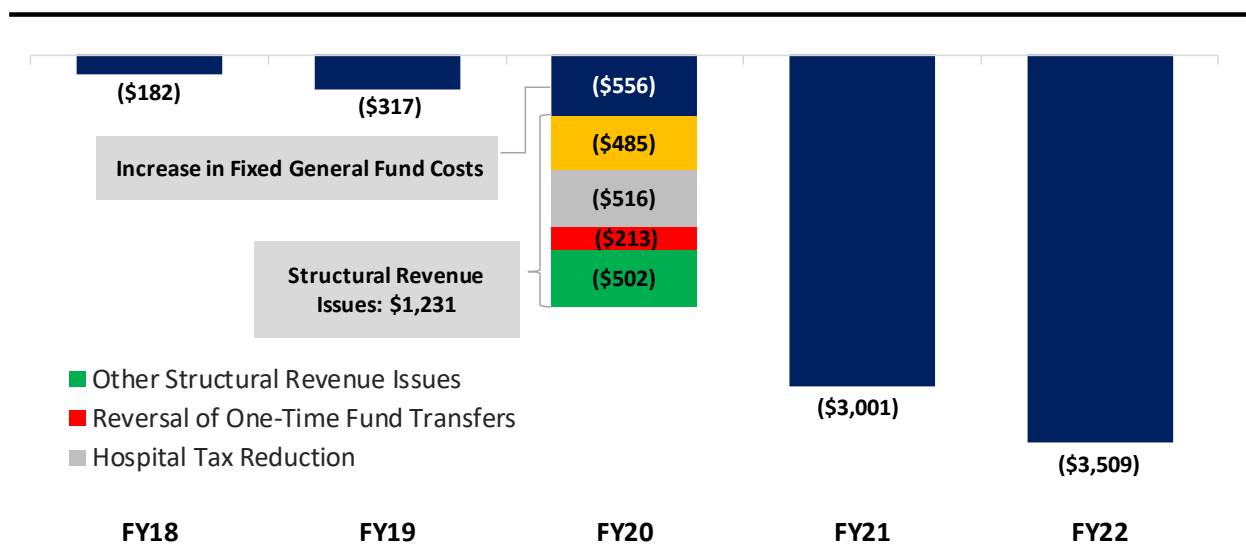
SOURCE: Moody's, Forbes, CNBC, Beacon Hill Institute

To further our understanding of Connecticut’s competitiveness, we can divide our analysis into four sections: fiscal stability, tax policy, business competitiveness, and quality of life.

FISCAL STABILITY

Despite achieving a bipartisan budget in October, the state now forecasts multi-billion dollar budget deficits for the three years outside the FY 2018 – FY 2019 biennium. A large portion of the out-year deficits is due to potentially reversible budget decisions scheduled to occur in FY 2020, including a reduction in the hospital tax, the reversal of one-time fund transfers in the biennium, and the restoration of historical levels of municipal aid⁴.

CONNECTICUT STATE FORECASTED BUDGET BALANCES (\$ IN MILLIONS)⁵



Source: FY18-19 Biennial Budget, January 2018 Consensus Revenue Estimates, January 2018 OPM Budget Estimates, OFA Out Year Estimates

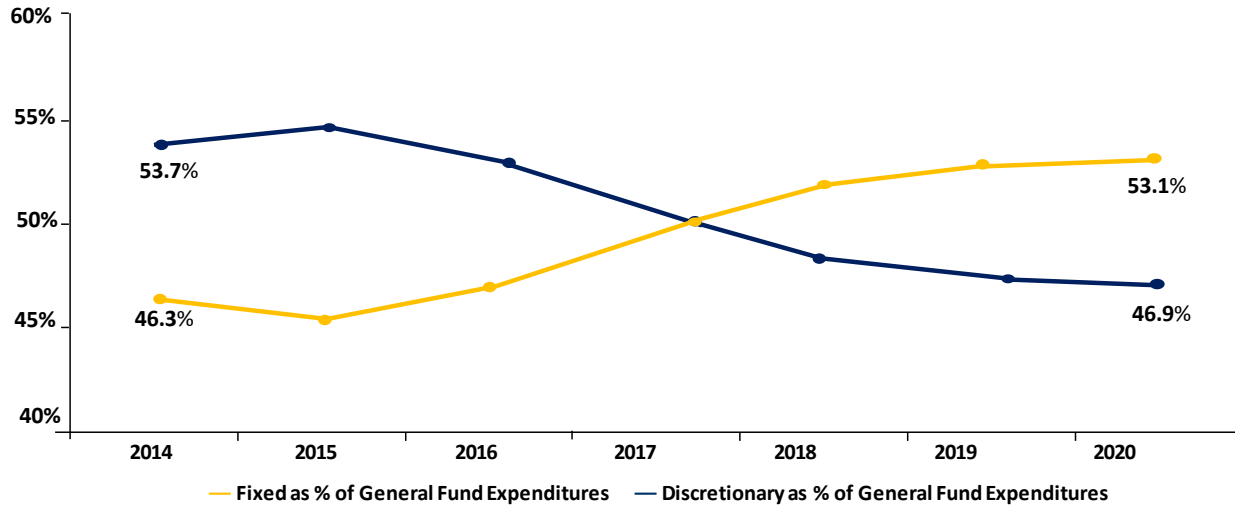
Even after removing all reversible items above, the budget deficit would still grow to over \$2 billion by FY 2022 as fixed expenditures (which include pension and retiree healthcare contributions, debt service, and entitlement programs such as Medicaid) are projected to grow at a compound annual growth rate (“CAGR”) of 5.9% from FY 2017 to FY 2020.⁶

⁴ The governor’s Recommended Budget Adjustments for FY 2018, released February 7, 2018 addresses and would reverse all \$1.2 billion of the so-called “Structural Revenue Issues” in FY 2020.

⁵ Includes General Fund and Other Appropriated Funds. FY18 and FY19 budget balances based on October’s Biennial Budget, adjusted to incorporate January 2018 consensus revenue estimates and January 2018 OPM budget estimates. FY20 – FY22 per the Office of Fiscal Analysis Out-Year Estimates

⁶ OFA Fiscal Accountability Report FY17-20, does not account for enacted budget

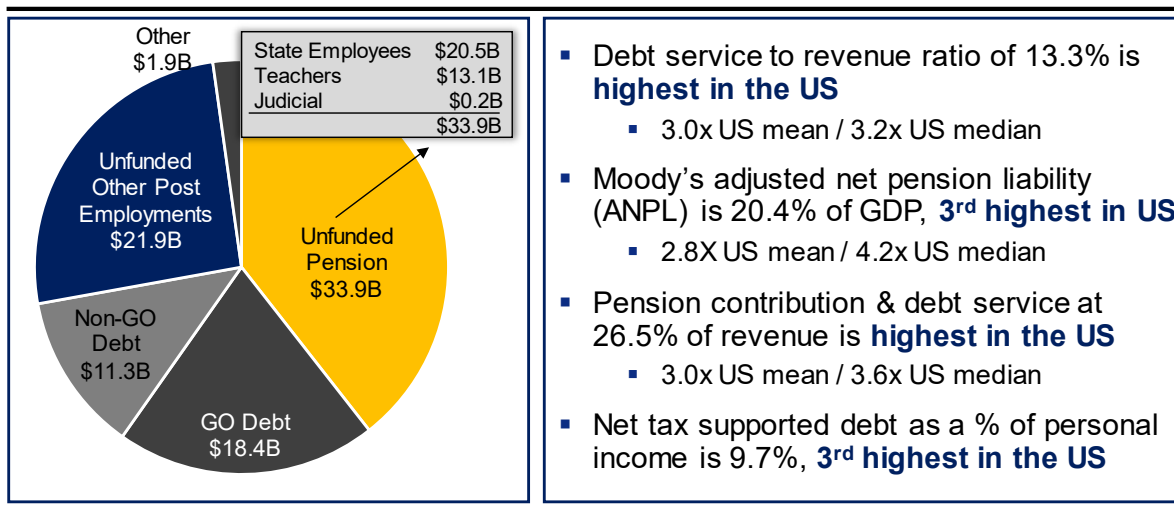
GENERAL FUND FIXED VS. DISCRETIONARY COSTS (% OF GENERAL FUND EXPENDITURES)



SOURCE: 2014-2016 Annual Reports of the State Comptroller, OFA Fiscal Accountability Report FY17 – FY 20

At the same time, Connecticut's legacy liabilities are precariously high and trending higher. The state is estimated to have total liabilities of \$87 billion as of June 31, 2017. These liabilities, as well as the annual payments required to service them, are extremely high relative to other states.

TOTAL LIABILITIES (\$ IN BILLIONS)⁷



SOURCE: 2017 CT CAFR, Moody's Investor Service

The state's \$87 billion of liabilities would increase to over \$100 billion if the state employee and teachers' pension systems reduced their weighted average investment return assumption from

⁷ Pie chart: Debt includes component units. Unfunded pension and OPEB liabilities represent unfunded actuarial accrued liabilities ("UAAL") based on actuarial reports for the state's pension and OPEB systems. Bullet points: These ratios have been calculated based on Moody's definitions of debt, pension liabilities, debt service, contributions and own-source governmental revenues (revenues less federal funding), and in most cases will differ from a state's own published calculations or the calculations of other institutions

7.5% to 6%, more in line with recent historical returns and returns of other US public pensions⁸. Through 2015, the average 10-year return for the 41 largest state funds was 6.59%⁹. For Connecticut's State Employees' Retirement System and Teachers' Retirement System, the ten-year compound annualized returns over the same period were 6.18% and 6.30%, respectively – significantly below the current investment return assumptions of 6.9% for SERS and 8.0% for TRS. Rolling forward to 2017, the ten-year compound annual returns for SERS and TRS deteriorated even further to 5.50% and 5.59%, respectively¹⁰. An unreasonably high investment return assumption artificially reduces the unfunded liability and the calculation of the annual contribution required to amortize that liability, making the budget appear more flexible than it really is and allowing the government to spend money that should otherwise be dedicated to pension funding or other programs.

The legacy liabilities are high because of both inadequate funding over the years and the relatively generous benefits that Connecticut provides to its public workers compared to other states. The average pension benefit payment per beneficiary in Connecticut was 26% higher than the average Northeast state and 38% higher than the average state in the US.¹¹

Pension liabilities, along with other legacy liabilities, are driving the high growth in fixed expenditures. Pension contributions for TRS and SERS are projected to increase from \$2.7 billion in FY 2018 to \$4.7 billion in FY 2032, representing a compounded annual growth rate of 4%.¹² Applying a more reasonable discount rate than the 8% rate currently employed would push the annual required contribution considerably higher.

Connecticut could benefit from evaluating the in-kind contribution of assets to its pension systems to improve their funded ratios and lower the state's annual required contributions (ARC), thereby reducing fixed costs. This would free up funds for important investments that are being crowded out today. The state could consider in-kind contribution of land, buildings, airports, roads, healthcare facilities and other assets that the state does not need to own and which may have valuable development potential.

⁸ Pew Charitable Trusts

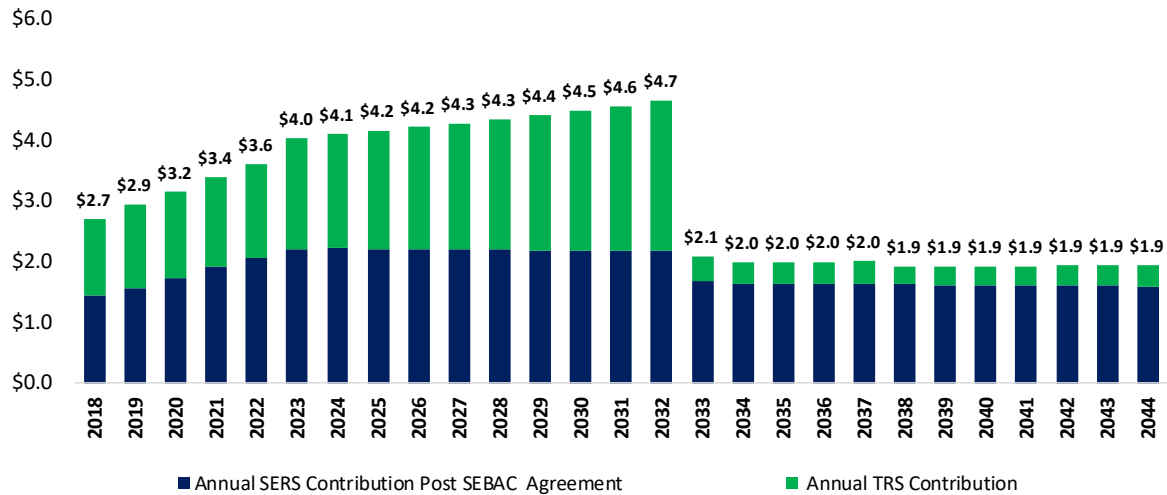
⁹ Return reported net of fees. The Pew Charitable Trusts, "state Public Pension Funds Increase Use of Complex Investments", April 2017

¹⁰ Reported net of all fees and expenses, for ten years ending December 31, 2017. CT Treasurer's Office Pension Fund Performance

¹¹ Figures calculated as benefits divided by total beneficiaries receiving periodic benefit payment. Annual survey of Public Pensions 2016 (US Census Bureau)

¹² TRS Contributions per the Pew Charitable Trust. JRS projected contributions unavailable

PROJECTED ANNUAL PENSION CONTRIBUTIONS (EXCL. JRS) (\$ IN BILLIONS)¹³



SOURCE: The PEW Charitable Trust, State Office of Policy Management, May 2017 SEBAC Agreement

In addition to its significant pension liabilities, Connecticut has a total liability for other post-employment benefits (“OPEB”) of \$22 billion¹⁴, which is high on both a relative and absolute basis, and for which the state also does not currently have any material funding set aside.

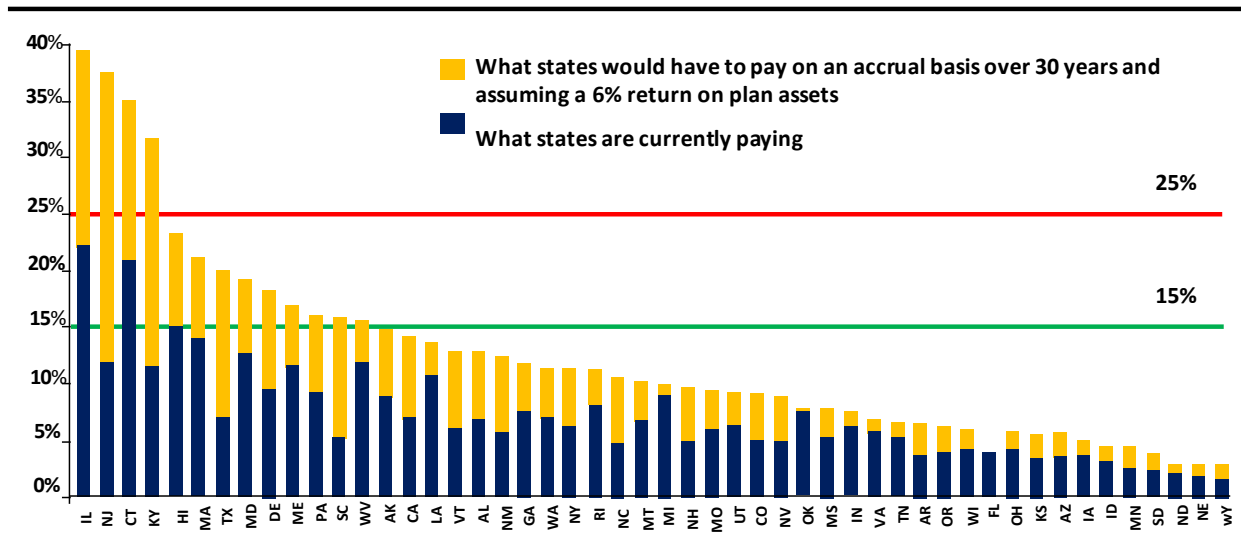
Connecticut’s significant OPEB liability is due, at least in part, to its benefits model. Connecticut is one of 27 states that contributes to retiree healthcare costs based on a “percentage of premium”, where the state pays 60% to 100% of health insurance premiums based on a sliding scale that accounts for retirement age and years of service. The average retiree receives a contribution from the state of approximately 90% of their health insurance premium, an amount that will decline by 5% for those retiring in 2022 or later, based on the 2017 SEBAC Agreement.

States that tie their OPEB contributions to premiums have relatively higher liabilities, as measured based on the ratio of OPEB liability to personal income. On this measure, Connecticut’s ratio is fifth highest in the country at 9%¹⁵. The 12 states that provide “fixed dollar” contributions have relatively lower liabilities. Connecticut’s OPEB liability was over \$200,000 per worker in FY 2015, nearly three times as high as the 75th percentile of all states, translating into a total liability of \$22 billion.¹⁶

13 JRS projected contributions unavailable. SERS per May 2017 SEBAC agreement. TRS per PEW Charitable Trust
 14 2017 Comprehensive Annual Financial Report, does not reflect the implementation of Medicare Advantage program
 15 PEW Charitable Trust
 16 The ARC and the Covenant 2.0, J.P. Morgan Asset Management

In FY 2015, Connecticut spent approximately 21% of state revenues to fund debt, pension and OPEB liabilities. Connecticut would need to spend approximately 35% of state revenues to fund these liabilities on an accrual basis over 30 years, assuming an illustrative 6% return on plan assets. In order to do so, the state would need to either raise revenues by ~14%, cut direct spending by ~14%, or increase worker contributions by 699% to meet full accrual payments to retirees.¹⁷

PERCENT OF STATE REVENUE COLLECTIONS REQUIRED TO PAY THE SUM OF BONDS, THE STATE'S SHARE OF UNFUNDED PENSION AND RETIREE HEALTHCARE LIABILITIES, AND DEFINED CONTRIBUTION PLAN PAYMENTS¹⁸



SOURCE: The ARC and the Covenants 2.0, J.P. Morgan Asset Management, State/Pension Plan Comprehensive Annual Financial Reports, Census, Loop Capital Markets, FY 2015

As the state considers ways to address these fiscal challenges, it should be wary of attempts to do so by relying on revenue increases. Connecticut's overall tax burden is already one of the highest in the nation¹⁹, driven largely by high personal income and property tax rates.

17 Full accrual payments represent amount needed to pay on sum of interest on bonds, the state's share of unfunded pension and retiree healthcare liabilities, and defined contribution plan payments over 30 years and assuming a 6% return on plan assets. Accrual basis expenditures include payments of benefits that have accrued even if cash payment for such benefits is not yet due. The ARC and the Covenants 2.0, J.P. Morgan Asset Management; state/Pension Plan Comprehensive Annual Financial Reports; Census; Loop Capital Markets. FY 2015

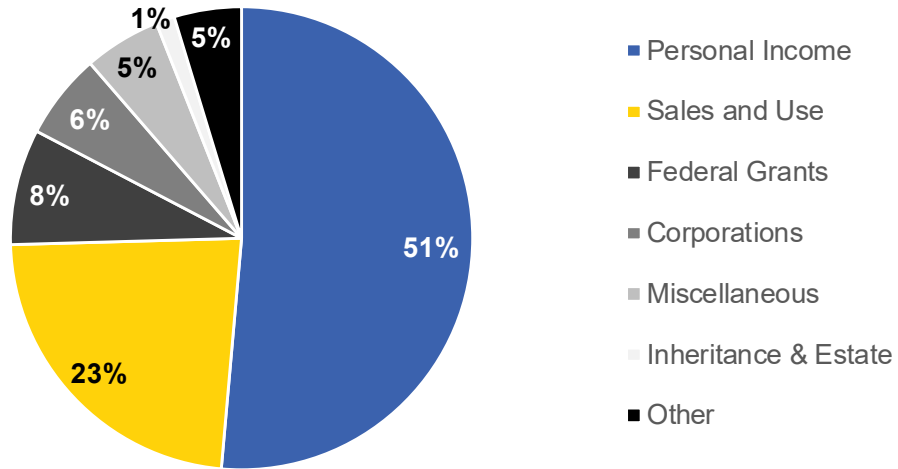
18 (See FN 17)

19 Connecticut's effective total state and local tax burden as a percentage of state personal income was 10.2% in FY 2015, which was the 6th highest ratio across the nation. State & Local Government Finance Data Query System, Urban Institute-Brookings Institution Tax Policy Center.

TAX POLICY

In the last fiscal year (FY 2017), Connecticut's General Fund revenues were derived from four primary sources—the personal income tax (PIT), the sales and use tax, the corporation business tax, and the estate and gift tax—as well as a subset of smaller sources:

GENERAL FUND REVENUE (2017)



SOURCE: Office Of Policy Management

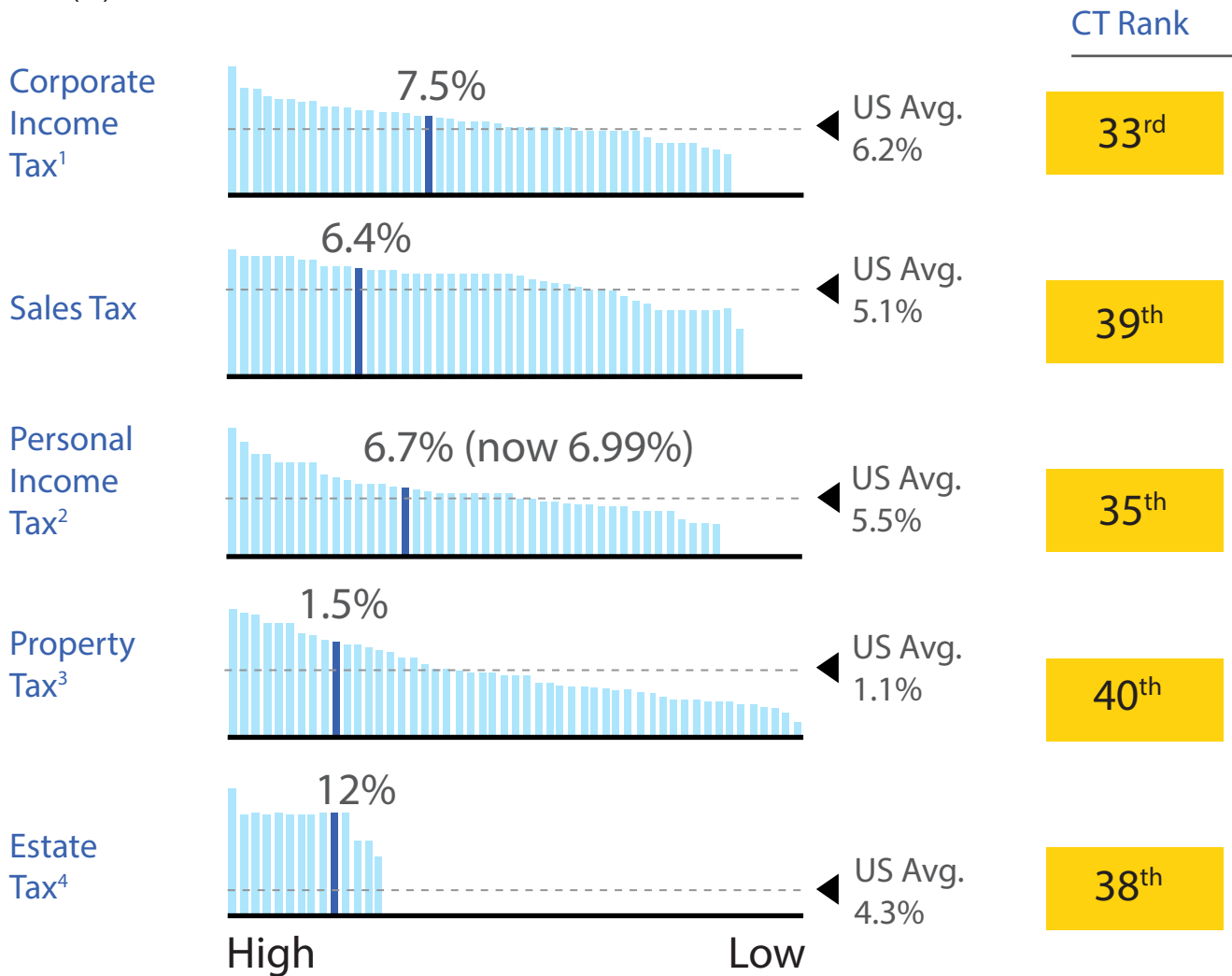
Based on external research and data, Connecticut has among the highest state tax rates in the country, with only Illinois, Nebraska, Wisconsin, New York, and Rhode Island having higher rates on a combined basis. Connecticut's tax rates are all higher than US averages. Connecticut residents pay almost 26.5% more than the US average²⁰.

²⁰ 2017 Tax Burden by state, Wallethub

CONNECTICUT'S TAXES ARE HIGHER THAN US AVERAGES



TAX RATES BY STATE, 2015, STATUTORY RATE, %
Rate (%)

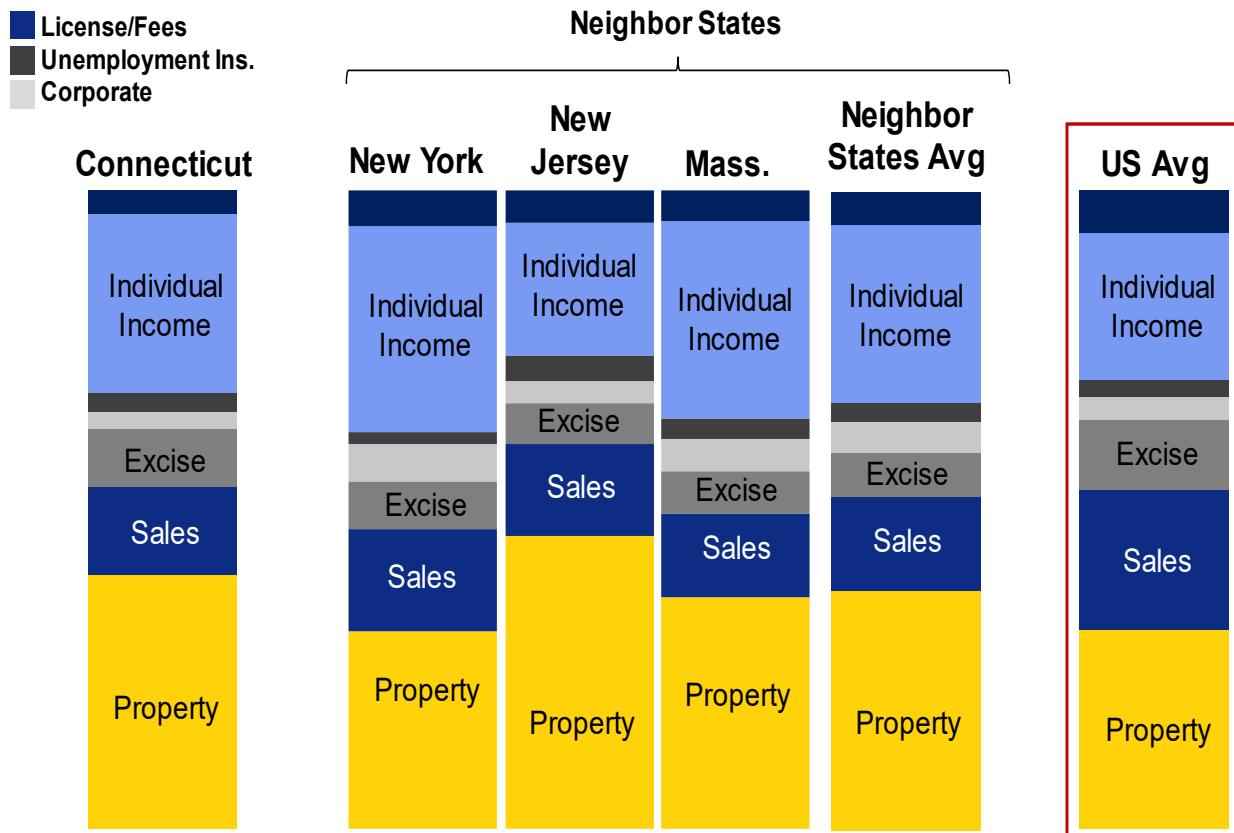


“The proposed tax increases are truly discouraging, and the company would seriously consider whether it makes sense to continue to remain in Connecticut.”
– GE statement, Hartford Courant (2016)

1 Represents the highest marginal corporate tax rate
 2 Represents the highest marginal personal income tax rate
 3 Mean Property Taxes on Owner-Occupied Housing as Percentage of Mean Home Value as of Calendar Year 2011
 4 Tax Foundation data
 Page 25

In terms of the mix of taxes compared to certain neighboring states with which Connecticut competes (Massachusetts, New Jersey and New York), Connecticut relies relatively less on business taxes (corporate and unemployment insurance), and licenses and fees.

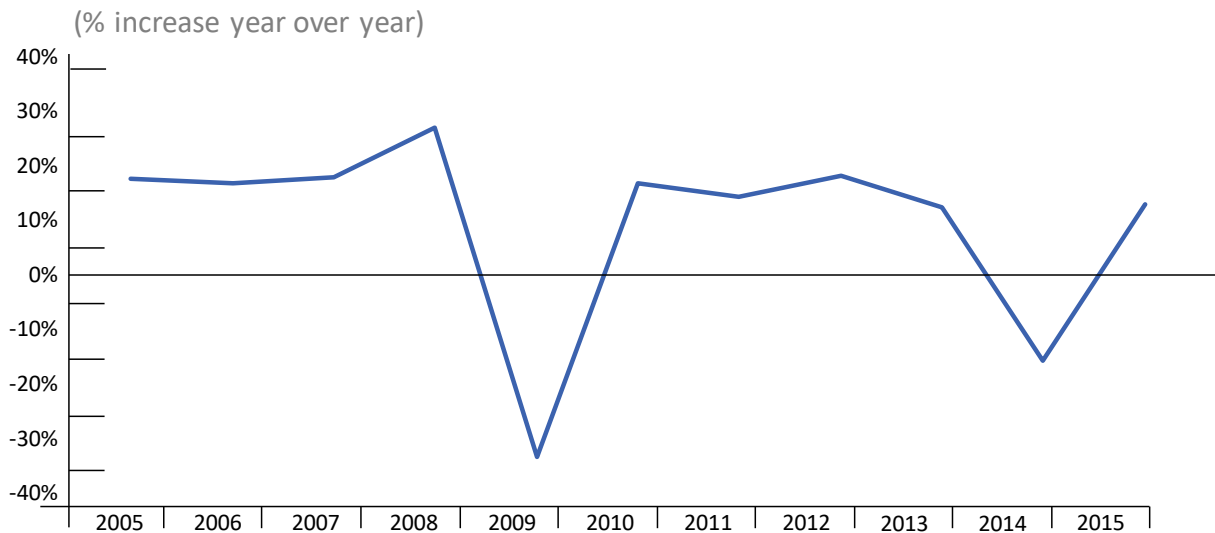
TOTAL STATE AND LOCAL TAXES VS. PEERS



SOURCE: Ernst & Young

Connecticut's income based revenue stream is highly volatile due to the demographic and economic makeup of the state.

CONNECTICUT'S INCOME BASED REVENUE STREAM IS HIGHLY VOLATILE



SOURCE: Forbes, Thumbtack.com, Kauffman

A significant portion of the income reported by high-income earners is from capital gains. Capital gains is reported through “estimated and final payments” of the income tax and is driving much of the volatility. According to a MassINC study in 2008, Connecticut was the second most at risk state in the country if capital gains income within the state declined.²¹

High concentrations of wealth and a substantial number of corporate headquarters also contributed to the large fluctuations. There is a significant geographic concentration in Connecticut's personal income tax revenue. In 2013, 36 of the 169 towns in Connecticut produced 64% of personal income tax revenue, 36% came from 10 towns (Greenwich, Stamford, New Canaan, Fairfield, Westport, Darien, West Hartford, Norwalk, Milford, Glastonbury), and in 2011, 357 families contributed 12% of the revenue.²²

The state's business tax regimen is somewhat complicated. First, with regard to shareholder owned companies classified as “C-corporations”, which in 2014 comprised 41,194 firms or 19% of the state's businesses (usually the larger ones), the corporate income tax (“CIT”) applies. Its rates are set at the higher of (1) 7.5% of net income based on the percentage of their total

21 http://www.osc.ct.gov/brf/docs/BudgetReserveFund_policybrief.pdf

22 Department of Revenue Services (2011 & 2013)

national sales realized in Connecticut, or (2) a capital base method based on a 3.1 mill rate applied to net assets (a \$1 million annual cap applies to capital base method). Both methods are calculated for each entity and the one producing the higher tax is then applied. Any increase in a reporting entity's tax liability under the net income method caused by the post 2016 switch to unitary accounting is capped at \$2.5M. There is also a 20% surtax applied to companies that have over \$100 million in gross income. This surtax will be reduced to 10% for the 2018 tax year (2019 calendar year). Connecticut also imposes a \$250 annual minimum tax, as well as a range of credits (the largest of which are for "fixed capital" and R&D). In 2014, the use of credits reduced overall CIT liability by 24%, with a subset of industries getting a significant portion of these benefits.²³ The CIT produced approximately \$1 billion in FY 2017.

The other group is the "pass-through" businesses (partnerships, S-corporations, LLCs, etc.) which are the large majority and faster growing segment of businesses, making them exempt from the CIT. Their net income is passed through to their individual owners where it is taxed at their PIT rate. Nationally, 95% of business entities are now pass-throughs, and 58% of state-level business income passes through them.²⁴

The question of the relative equity of tax burdens between the "Cs" and the "pass-throughs" is much debated, but the PWC Report was able to conclude that on a national basis the effective tax rate (ETR) on C-corps was 6.1% of business income, while for pass-throughs it was 4.7%. There is no apparent reason why pass-through entities should have the same access to state services as the C-corps, but are responsible for a disproportionately smaller amount of the tax burden.

There is considerable significance in all of this for the Commission. We have the same question of relative equity between the two groups of business taxpayers at the state level, since Connecticut's CIT only applies to C-corps. We also have received conflicting arguments regarding the ETR that Connecticut C-corporations pay and whether Connecticut companies enjoy a lower level of taxation compared to neighboring states. On the one hand, there is a 2017 report prepared by Ernst & Young (E&Y) that finds that Connecticut has the lowest total effective business tax rate (TEBTR) at 3.5%, compared to 4.5% across all states. As E&Y points out, there are many factors that influence TEBTR that make it debatable as a measure of tax burden. TEBTR is a ratio of tax rates against Gross State Product. Connecticut's companies are highly

²³ Connecticut DRS 2015-16 Annual Report

²⁴ Corporate and Pass-Through Business state Income Tax Burdens", prepared by PWC for the state Tax Research Institute, Oct. 2017, hereinafter the "PWC Report"

productive (produce more GSP), but whether it follows that they should therefore be more highly taxed is not clear. (See “Total State and Local Business Taxes”, August 2017, E&Y)

Connecticut business taxes as a share of total state and local taxes in 2016 at 30% were well below those of both the neighboring states (Massachusetts 39%, New Jersey 42%, New York 41%) and the US average (45%)²⁵. Below is a chart provided by CBIA that shows a comparison of per capita corporate income taxes across Connecticut and its neighboring states. It shows that Connecticut is from 4% to 20% below those other states on this measure.

Finally, the Commission wanted to understand Connecticut’s competitive positioning on the rates for each major tax compared to the neighboring states.

State	Gross CIT receipts (In \$ Millions)	Population	Per Capita (\$)	State	Income Tax (Top Bracket)	Combined State & Local Sales Tax ¹	Corporate Income
Connecticut	\$1,037.60	3,576,452	\$290.12	Connecticut	6.99%	6.35%	7.50% ³
Massachusetts	\$2,471.00	6,859,819	\$360.21	Massachusetts	5.1% ²	6.25%	8.00%
New York	\$6,000.00	19,849,399	\$302.28	New York	8.82%	8.49%	6.50%
New Jersey	\$2,495.00	6,860,000	\$363.70	New Jersey	8.97%	6.85%	9.00%

SOURCE: CBIA, February, 2018

Source: Tax Foundation, 2017
 (1) State and Local Sales Tax Rates 2017 - Tax Foundation
 (2) Flat 5.1%
 (3) 9.0% for companies >\$100M including 20% Surtax

The state’s uncompetitive and volatile tax structure coupled with its shrinking population is leading to stagnant economic growth. A new tax structure must be put in place. Tax policy drives economic behavior. A poll conducted by Sacred Heart’s Institute for Public Policy in 2017, shows that 49% of respondents making more than \$150,000 a year are considering moving out of the state within the next 5 years. That poll also indicated that 64% of respondents claimed that it was “very” to “somewhat” difficult to maintain their standard of living, 52% citing taxes as their primary concern.

Based on this analysis, the Commission concludes that we should recommend a revenue neutral restructuring of taxes in Connecticut along the following lines:

- Connecticut’s PIT rates, which are important both to individuals and pass-through businesses, need to be competitive, especially compared to Massachusetts (which is currently the lowest of the four states), but we should be more progressive than Massachusetts in Connecticut’s rate structure;

25 E&Y Total State and Local Business Taxes, 2016

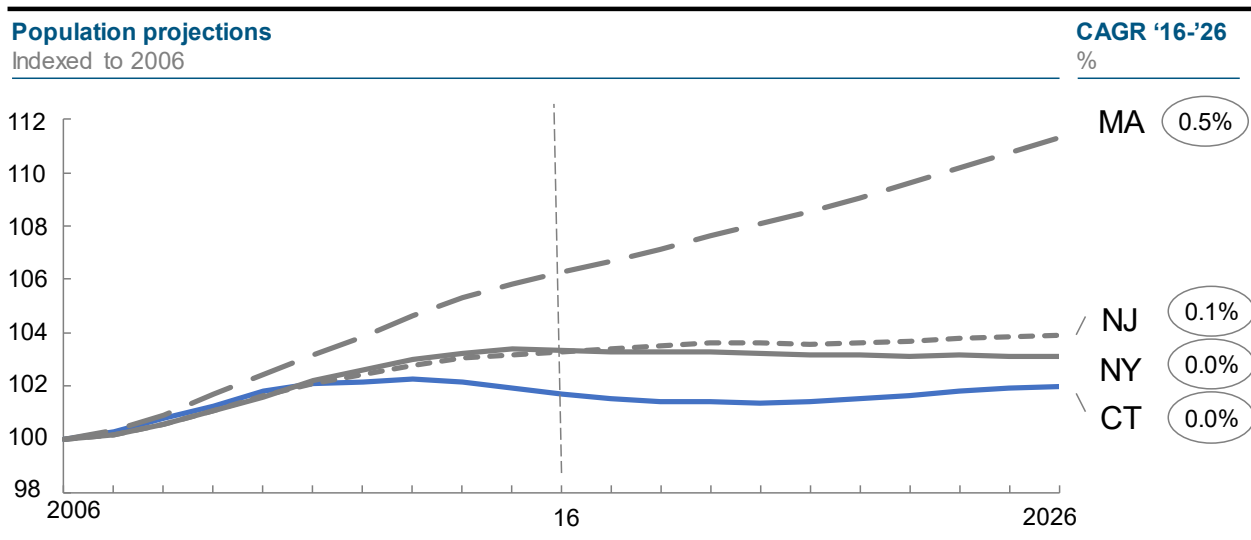
- Connecticut’s sales tax rates can sustain a modest increase and still be competitive, but more importantly the sales tax base can be expanded materially both on grounds of tax equity and revenue needed;
- Connecticut’s business taxes can increase moderately, and an entity-based approach for any increases that would be applicable to both C-corporations and pass-throughs should carefully be examined; and
- The gift and estate tax puts the state at a substantial competitive disadvantage in return for small dollars raised, and should be repealed. Wealthy people are some of the most mobile and this tax is a key factor in the state’s outmigration problem.

BUSINESS COMPETITIVENESS

Talent and human capital are crucial for any state’s competitiveness. The larger and more skilled the workforce, the more tax revenues, innovation and other positive externalities a state can expect. A large skilled workforce is also one of the top reasons businesses choose a location for factories, labs and offices.

In 2016, Connecticut was home to 3.6 million people, a decline of about 1% over three years owing to outmigration and a low birth rate. Over a decade, Connecticut’s growth has been effectively flat and is projected to remain flat in the coming decade.

CONNECTICUT’S POPULATION GROWTH MAY REMAIN FLAT

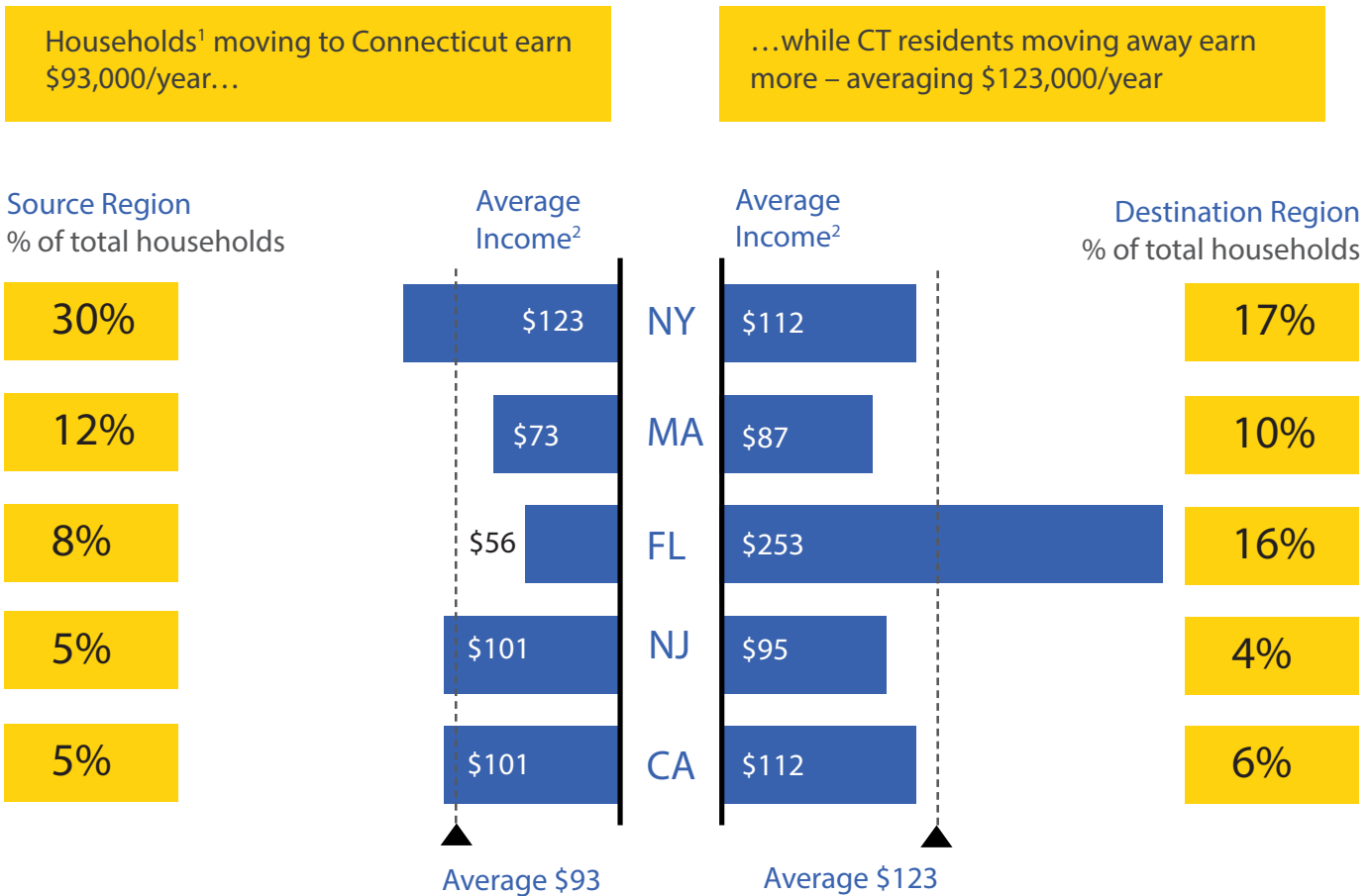


Source: US Census, American Community Survey, BLS

Contributing to Connecticut's flat population growth has been a pattern of net outmigration, which correlates closely to income tax increases. At the same time, the state's resident population has been aging.

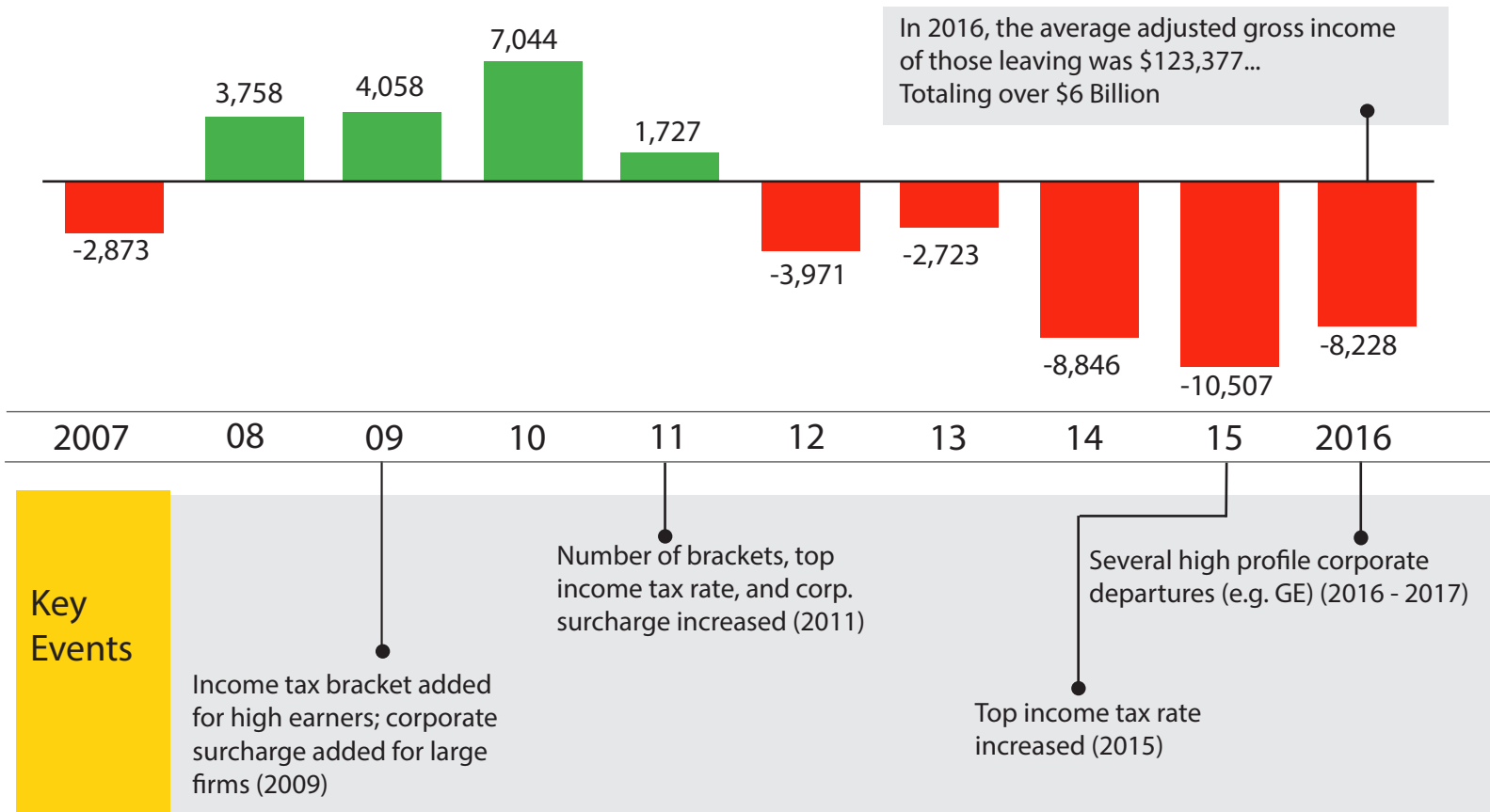
Those migrating to Connecticut are earning less than those who are departing by \$30k per household. In 2009, a new income tax bracket was added for high-income earners and the corporate surcharge was added for large firms. In 2011, the top income tax rate, the number of personal income tax brackets, and the corporate surcharge all increased. In 2015, the income tax rate increased again, and by 2016 several high-profile corporations such as General Electric and Aetna announced decisions to move their headquarter locations out of the state. Along with corporations, Connecticut saw over 37,000 residents, with an average adjusted gross income (AGI) of \$123,377 (totaling over \$6 billion in total taxable income), migrate out of the state²⁶.

MIGRANTS TO CT EARN LESS THAN THOSE WHO LEAVE



SOURCE: Internal Revenue Service (2015-2016)

HISTORICAL NET MIGRATION IN CONNECTICUT, # OF PEOPLE



SOURCE: FY 2019 – FY 2020 Biennium Economic Report of the governor

In terms of talent, Connecticut struggles to retain both new graduates and more experienced professionals. In Connecticut, 32% of students who attend a university in state remain in the state past graduation, compared to 54% of graduates in New York and 46% of those in Massachusetts²⁷.

The state's residents today have high levels of educational attainment and strong labor productivity. In fact, Connecticut boasts one of the most educated workforces in the nation and its productivity rate is the 6th highest in the country. However, Connecticut's overall high educational attainment rate disguises a more nuanced picture of education. While the state ranks 4th in the quality of its primary and secondary education, its higher education system is ranked 27th overall by US News State Leading States Index²⁸. Connecticut also ranks 28th

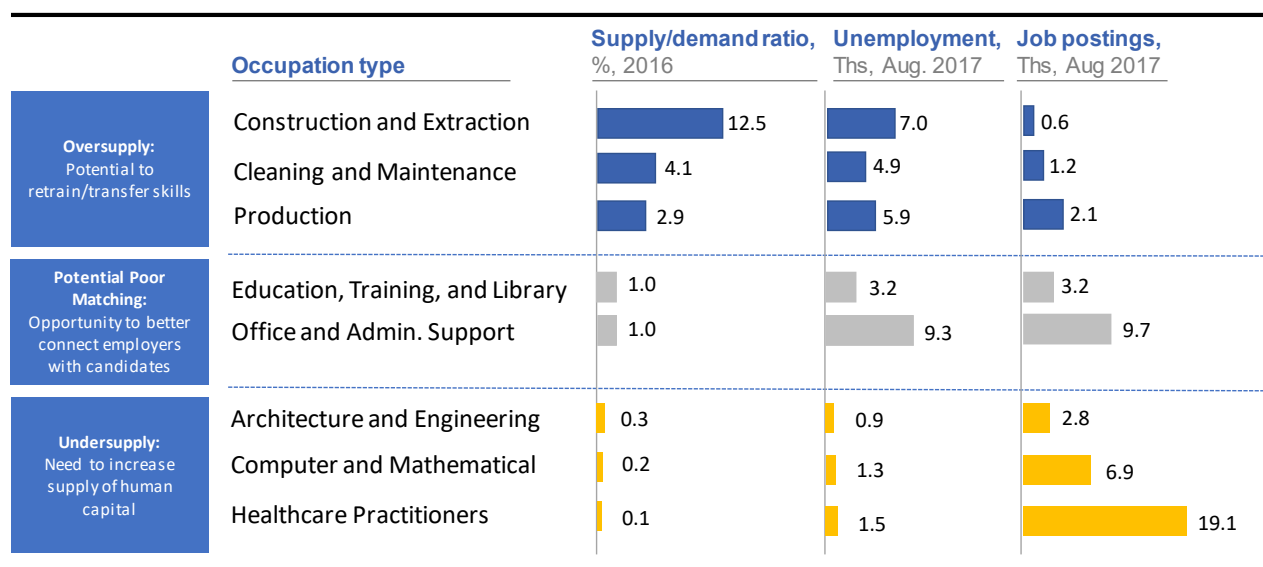
²⁷ Economic Modelling Specialists International (EMSI) 2017

²⁸ US News Leading States Index 2017

among states in its overall graduates as a share of the population, and in science, technology, engineering and math (STEM) graduates as a percent of total graduates²⁹.

The STEM graduate ranking indicates that the state is not educating a sufficient number of its students to meet the needs of the next generation of jobs, particularly since so much of the excess demand in Connecticut’s labor market is in STEM fields. The state is one of two states where jobs placed in STEM fields have declined. Companies in the state are facing difficulties filling jobs in computer, mathematical and engineering-related roles, and healthcare, while cleaning, maintenance and production workers are having trouble finding jobs.

CONNECTICUT HAS A MISMATCH OF LABOR SUPPLY AND DEMAND



Source: EMSI and BLS data

Thus, Connecticut faces a range of human capital challenges: its workforce is aging and leaving, (shrinking the number of available workers), its people are highly educated today but its schools are receding in their ranking of portion of graduates and STEM graduates; and it is struggling to match its existing talent with job openings.

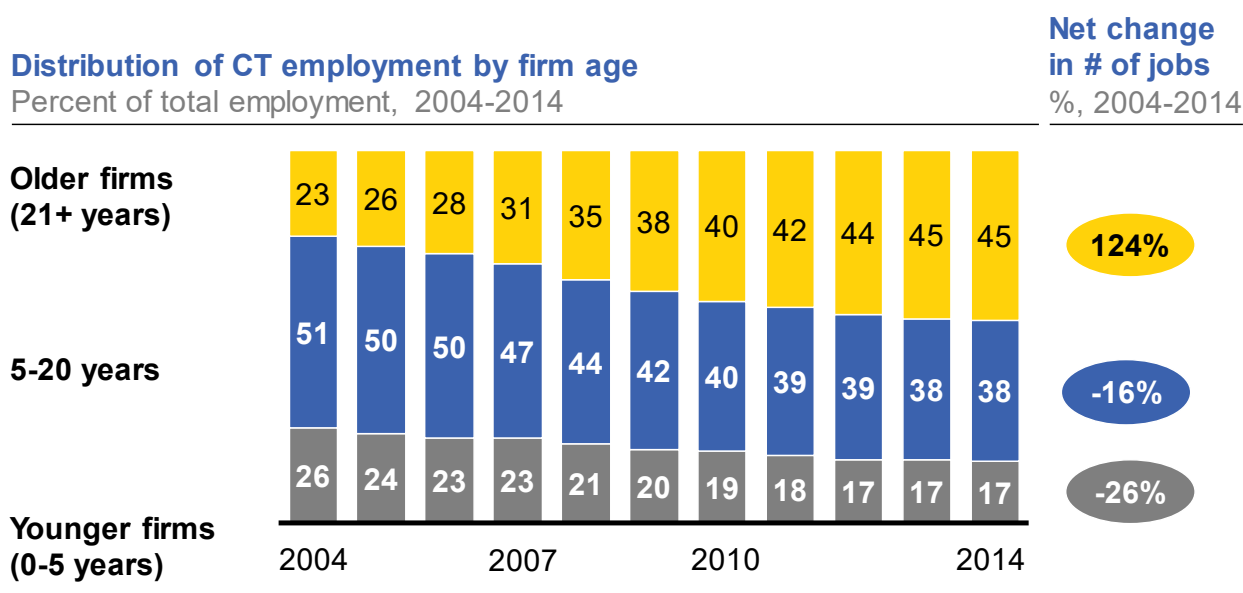
Innovation and entrepreneurship are also keys to competitiveness because they are an engine for economic vitality and future job growth, whether it’s from fast growing startups of new products or supporting the supply chains of existing companies. A healthy pipeline of new ideas and new businesses keep states vibrant and growing.

²⁹ National Center for Education Statistics 2015

From Eli Whitney’s cotton gin to Igor Sikorsky’s first helicopter in the United States, Connecticut has a long history of innovations. Connecticut has continued this legacy as a modern-day leader in technical innovation. US News ranks the state as the 6th most innovative, and the National Science Foundation ranks it 6th in business R&D spend, 12th in academic R&D spend, and 8th in patents per capita – more than 600 per million people in 2015.

While Connecticut is clearly a national leader in academic and corporate innovation, the same cannot be said of its record on business entrepreneurship. Connecticut ranks 31st in percent of adults starting a business per month³⁰, and 37th in new to 5-year-old firms as a share of the total³¹. The state’s employment is increasingly concentrated in older firms. Employment by new and young companies declined by nearly a quarter from 2004-2014.

THE STATE’S NEWER FIRMS EMPLOY A DECLINING SHARE OF WORKERS



NOTE: Excludes employment data for companies where firm age data is unknown (~15-25% of total employment for each state)
SOURCE: U.S. Census: Business Dynamics Statistics

The lack of new businesses is accompanied by a mediocre investment environment for small firms. Venture capital funding and private equity investments per capita are near the US average: Connecticut ranks 24th and 26th respectively³².

30 Kaufmann Entrepreneurship Index
31 Longitudinal Business Database, US Census Bureau, 2014
32 National Venture Capital Association/PricewaterhouseCoopers Report

The ease and cost of doing business is not a strong suit for Connecticut: CNBC ranks it 32nd among 50 states, and Forbes ranks it 42nd on its regulatory environment and 41st in overall ease of doing business. Small business owners surveyed by the Thumbtack Small Business Friendliness Survey point to a similar story, ranking the state at 40th in overall business friendliness and 33rd for ease of starting a business³³.

On the same survey, small business owners ranked the state 43rd in the number and burden of regulations placed on them, 47th for rules related to employment, labor and hiring, 42nd for licensing, 47th in environmental regulations, and 42nd in zoning³⁴.

On a separate survey of small businesses by CBIA, 68% of respondents said that additional business costs from government mandates, other than taxes, were among the top five concerns³⁵.

TRANSPORTATION & INFRASTRUCTURE

Transportation and Infrastructure are the backbone of the Connecticut economy; the ability to move quickly, efficiently, and safely is paramount for attracting, retaining and growing businesses and creating jobs, both of which support retention and expansion of the tax base. Despite its importance, the state has underinvested in transportation infrastructure for years. This has resulted in degraded infrastructure, causing congestion, potential future safety concerns and unreliable service. The resulting loss of productivity for business is a major impediment to economic growth.

Connecticut is strategically located between New York City and Boston. Access to both cities and many employment opportunities, combined with Connecticut's lower housing costs, should make the state an attractive place to live. However, Connecticut does not leverage this advantage because partial rail service is not rapid enough to commute to Manhattan from outside of Fairfield County and the highways are too congested for regular commutes to either New York or Boston. Similarly, because of slow rail service and anemic business growth, Connecticut is not generating opportunities for reverse commuting from New York City, especially among young college graduates. The ability of residents to reach New York and Boston quickly could be a driver of

33 Thumbtack Small Business Survey asked several questions about business friendliness to >13,000 small business owners across the US, Connecticut small business owners contributed the input that was compared with other states to come up with final ranking

34 Thumbtack Small Business Survey asked several questions about business friendliness to >13,000 small business owners across the US, Connecticut small business owners contributed the input that was compared with other states to come up with final ranking

35 CBIA Small Business Survey, 2016

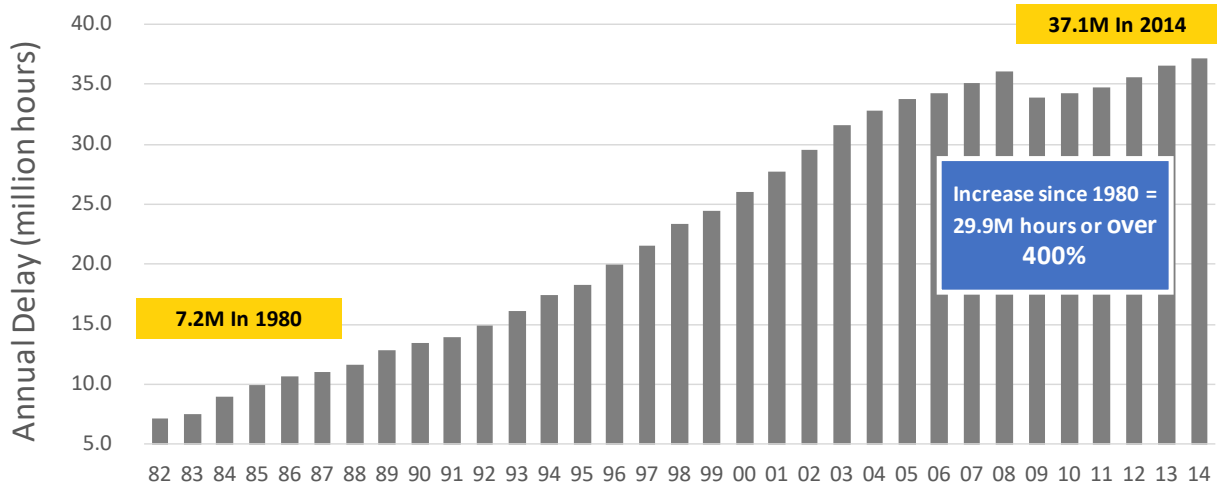
economic growth, enabling people to live in many parts of Connecticut and be able to reach these cities quickly.

In addition to land-based travel, air travel, which is overseen by the Connecticut Airport Authority (CAA), also requires significant investment. In Connecticut, air passengers must often travel first to hubs outside the state in order to connect to their final destination. As a result, Southern Connecticut is one of the most underserved air markets in the country, as most potential patrons of Tweed travel to airports in New York instead.

The key challenges facing Connecticut’s transportation system include:

- Congested highway travel and unreliable traffic conditions cost businesses and citizens billions of dollars in lost productivity, wastes an immense amount of time and causes aggravation, and disincentivizes businesses from expanding or locating in the state. Productivity losses from congested highways are enormous. In 2014, commuters in the Bridgeport-Stamford Metro Area alone suffered 37.1 million hours of annual delay, up nearly 30 million hours since 1982.

MILLIONS OF HOURS OF DELAY ANNUALLY: BRIDGEPORT-STAMFORD METRO AREA



Source: Texas A&M Transportation Institute

- Of the 4,238 bridges in Connecticut, 332, or 7.8%, are classified as structurally deficient. This means one of the key elements is in poor or worse condition. There are 55 structurally deficient bridges in the state on the Interstate Highway System³⁶.
- The commuter rail system to New York relies on five critical bridges that are each over 100 years old. In 2014, the 120-year old bridge over the Norwalk River failed to close and

³⁶ American Road & Transportation Builders Association. Data from the FHWA's 2017 National Bridge Inventory.

trains could not operate through this section for two weeks. The closure displaced tens of thousands of commuters every day, seriously impacted businesses, and cost Connecticut's economy an estimated \$50-\$100 million in Gross State Product. The estimated cost in today's dollars required over the next ten years to begin replacement of these five bridges is over \$2 billion.

- Connecticut's bus system is a primary means of getting to work by tens of thousands of Connecticut residents. However, its routes are outdated and service is provided by 26 different operators, leading to independent fare and service policies, factors which cause unnecessary connections and long commutes.
- Air travel is critical to connect local businesses to the global economy, but business travelers often utilize airports in New York or Boston rather than in Connecticut given lack of adequate service at Tweed (New Haven) and Bradley (Hartford) airports.
 - Specifically, there is a legislatively imposed restriction on the length of the runway at Tweed Airport, a potential key link for Southern Connecticut business travelers who instead support New York airports and add to I-95 traffic congestion. Commuter flights out of Tweed would be of significant benefit to biotech and other start-up companies in Southern Connecticut.
 - Bradley Airport lacks adequate non-stop service to the West Coast and to key international hubs. Bringing additional routes to Bradley would help generate economic activity and generate revenues that are currently going to airports outside of Connecticut.
- The state's aging transportation infrastructure needs major capital expenditures to maintain even current inadequate service levels. The Special Transportation Fund ("STF") oversees investment in buses, roads and rail, and relies primarily on appropriations from the General Fund each year for its operations. However, these appropriations have not provided a steady source of funding that can be relied upon for long-dated capital projects. The STF must have a steady and reliable revenue stream, which would enable it to engage in longer-term planning and related financing decisions.

QUALITY OF LIFE

Quality of life is crucial for competitiveness because it helps attract and retain talented people; companies take quality of life into consideration when deciding where to locate.

Overall, Forbes ranks Connecticut 5th in the nation in quality for life. Most of its towns are safe, with good schools and access to quality healthcare, for example. US News ranks the state as 8th in crime and corrections, 4th in education and 12th in healthcare. On average, residents are also more affluent than the average American, with nearly 50% of households earning at least \$75,000 per year and 10% more than \$200,000.

Central to both quality of life and business competitiveness is a state's relative standing with regard to the appeal and vitality of its central cities. Connecticut's cities are not typically regarded as being at the leading edge. Yet, there are important strengths to build upon. Certain cities have become leaders in culture and arts organizations. Further, in the case of Hartford, Bill Cibes—a former Secretary of Management and Budget for the state, writes:

“The Hartford metro area not only ranks No. 4 in the nation in “digitalization,”³⁷ it also ranks No. 3 in the WORLD in terms of productivity per capita....In 2016, the Brookings Institution and JPMorgan Chase published a study of the 123 largest metropolitan economies in the world. Data from that study show that, with nominal GDP per capita of \$84,029, the Hartford metro area ranks No. 3 in the world, after only San Jose (at \$91,437) and Singapore (at \$84,309)³⁸. And GDP per worker (\$158,428) ranks No. 4 in the world, after San Jose (\$171,288), Houston (\$166,808), and San Francisco (\$164,521) – ahead of New York (\$158,339), Los Angeles (\$158,165), and Boston (\$139,160)³⁹. (Connecticut as a whole ranked #3 in the country (\$64,511), slightly behind Massachusetts (\$65,545) and New York (\$64,579), in GDP per capita in 2016.⁴⁰) The Hartford metro is classified as one of the 19 “Knowledge Capitals,” which according to the authors of the study, “are the world's leading knowledge creation centers.”⁴¹

37 Muro, Liu, Whiton and Kulkarni, “Digitalization and the American Workforce,” Brookings Institution, November 2017, page 30. <https://www.brookings.edu/research/digitalization-and-the-american-workforce/>

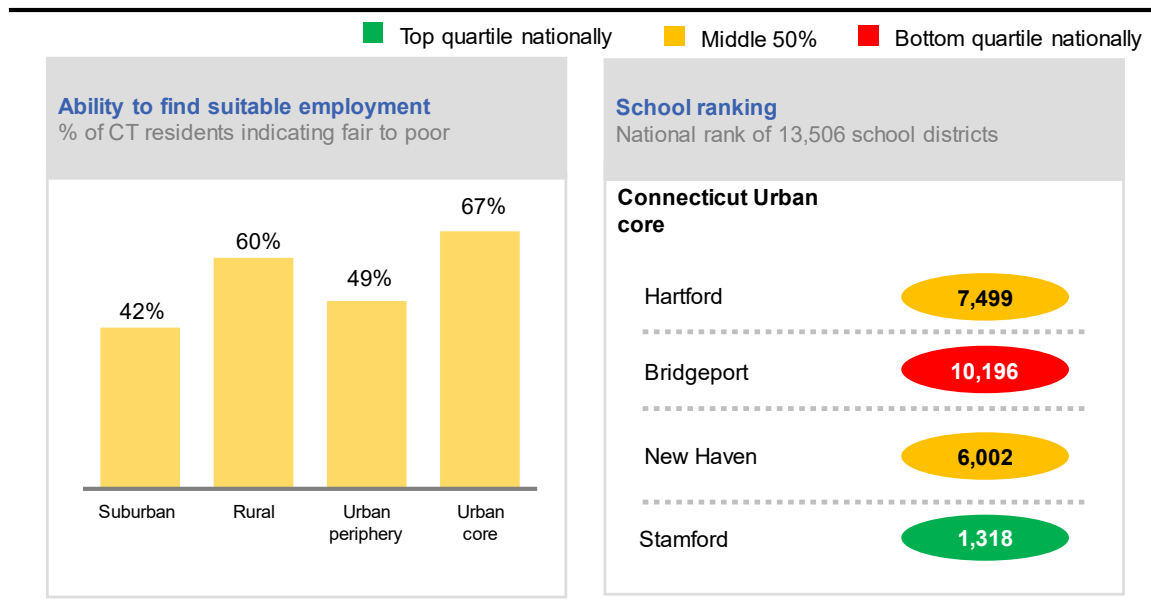
38 Jesus Leal Trujillo and Joseph Parilla, “Redefining Global cities: The Seven Types of Global Metro Economies,” Brookings and JP Morgan Chase, Global cities Initiative, September 29, 2016. The data for 2015 for all 123 metros are on pages 18, 21, 24, 27, 30, 33, and 36 of the PDF report, which may be downloaded via a link at <https://www.brookings.edu/research/redefining-global-cities/>

39 Jesus Leal Trujillo and Joseph Parilla, “Redefining Global cities: The Seven Type of Global Metro Economies,” Brookings and JP Morgan Chase, Global cities Initiative, September 29, 2016. The data for 2015 for all 123 metros may be accessed by hovering over charts for the seven types of metros at <https://www.brookings.edu/research/redefining-global-cities/>

40 <https://www.statista.com/statistics/248063/per-capita-us-real-gross-domestic-product-gdp-by-state/> 5 Trujillo and Parilla, pp. 2, 30.

41 Bill Cibes, from a Memorandum submitted to the Commission on February 22, 2018

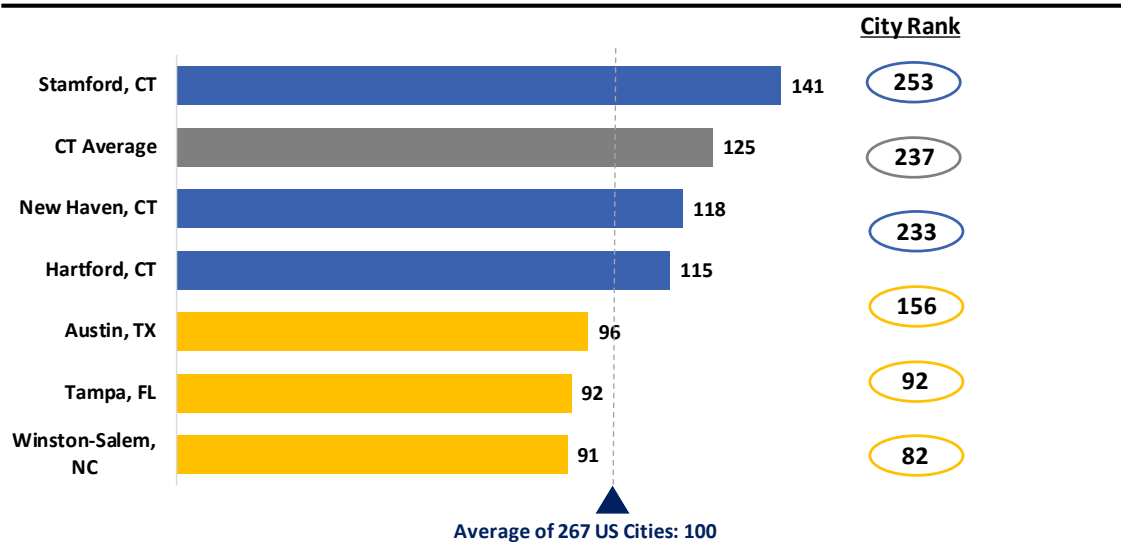
At the same time, Connecticut's cities provide a mediocre quality of life to the average resident. In AARP's Livability Index, which ranks cities based on housing, neighborhood attractiveness, transportation, environment, health, engagement and opportunity, Hartford has a livability score of 58, Stamford is 54, and New Haven just 51 out of 100. Vibrant urban cores are increasingly important for drawing new residents – especially millennials – but Connecticut's mediocre urban hubs fail to inspire them. Connecticut's cities also rank poorly on ability to find suitable employment, quality of its schools, among other qualities.



Source: Education Week, CT Data Haven, Zillow.com

In addition to scoring low on livability, living in Connecticut's cities costs more than living in an average US city and comparably sized metropolises.

THE COST OF LIVING IN CITIES IS HIGHER IN CONNECTICUT



SOURCE: National Association of Realtors (2015)

The promise of Connecticut's high quality of life once drew new highly educated residents from Boston and New York. They helped drive the state's growth and prosperity for generations. The quality of life in nearby cities has improved dramatically in recent years, while it has declined in Connecticut's cities, reversing the once steady stream of migration and exacerbating other challenges, such as a loss of income tax revenues.

SUMMARY OF FINDINGS

Unfortunately, this extended discussion of findings presents a picture of steady fiscal and economic decline in Connecticut. Our challenge as a Commission is not just to understand the facts, but to communicate them in a compelling way so that our governmental leaders and the state's citizens at large have a shared starting point of concern as we approach the task of developing solutions.

RECOMMENDATIONS



RECOMMENDATIONS

While the Commission's charge is to prepare legislative proposals, we need to direct certain recommendations to the governor for executive action and to the private sector across a broad range of engagements. While some of these recommendations may be more impactful than others, they are all important and should be acted upon as soon as possible, even though full implementation may take several years. Ideally, they should all be taken up by the legislature as a package, and some of them—those involving tax reform, spending management and transportation—must be dealt with in an integrated fashion. The Commission offers the following proposals for immediate action:

PRO-GROWTH AND REVENUE NEUTRAL TAX REFORM

The Commission proposes a tax policy which would, if all provision were implemented simultaneously, be revenue neutral for the general fund, but revenue positive over time if joined with other initiatives. In developing this policy, we have tried to follow principles of fairness and neutrality among taxpayer groups, revenue adequacy, and attention to issues of economic equity. It seeks to drive economic growth which will ultimately produce the capacity to improve services and lower income disparities. It should send a very positive message to people at all income levels and help lift Connecticut's economy and our confidence in government back into positive territory.

This policy proposal has several elements:

Personal income tax: At the center of the Commission's recommendation is a dramatic reduction in the PIT rates, phased in over three years—by 18% in the top bracket (from 6.99% to 5.75%), by similar or greater amounts in lower brackets, and to zero for incomes below \$10,000:

RECOMMENDED CHANGES IN PERSONAL INCOME TAX BRACKETS

Brackets	Today	2020	2021	2022+
<\$10k	3.00%	0.00%	0.00%	0.00%
\$10k - <\$50k	5.00%	4.50%	4.00%	3.50%
\$50k - <\$100k	5.50%	5.00%	4.50%	4.50%
\$100k - <\$200k	6.00%	5.50%	5.00%	4.50%
\$200k - <\$250k	6.50%	6.00%	6.00%	5.75%
\$250k - <\$500k	6.90%	6.50%	6.00%	5.75%
\$500k+	6.99%	6.50%	6.00%	5.75%

The Commission’s objective in the restructuring of the PIT is to create rates and tiers that compete more effectively with neighboring states, while at the same time retaining a graduated bracket structure - in contrast to Massachusetts’ flat rate of 5.1%.

As described in CBIA and other surveys, the PIT is the most disliked tax by residents and business owners, and reducing it would deliver a powerful boost to the economy and confidence levels. A cut in the PIT also has the collateral effect of softening the impact of the new limit on the State and Local Tax (SALT) deduction recently enacted at the federal level.

Corporation income tax: We propose an increase of approximately \$475 million in total corporate taxes starting in FY 2020. These funds better balance and help offset the reduction in the PIT (which itself is a reduction in taxes for pass-through companies). It is important that the business community shares some of the burden for what will be a major reduction in taxes for individuals and families, helping them to absorb increased sales and gas taxes.

We believe this can be accomplished without losing Connecticut’s competitive positioning with neighboring states, and it should be done in a way that reaches equitably across both C-corporations and pass-throughs without an increase in the CIT rate. We propose to accomplish this through the levy of a 0.8% payroll tax across all companies, regardless of structure, but with a total credit (exemption) for up to the first nine employees and a reduction in rate to 0.4% for the next 10-99 employees. There is considerable interest in the Commission in exploring a business value or corporate activities tax and we believe that concept deserves further study. We believe that repeal of the Business Entity Tax, which produces only \$40 million every other year and is unrelated to entity profitability, should be part of any proposal. Insurance

companies, which are governed by a very different national regimen, would continue to be exempted while further analysis is done.

Sales tax: Effective in FY 2020, the sales tax rate would be increased from 6.35% to 7.25% to help balance the loss of revenue from the PIT reduction. While that rate would be tied with California as the highest in the country at the state level, the competitive comparison is better made by taking state and local sales taxes together. On that basis, Connecticut with a 7.25% state sales tax rate and no local sales taxes would rank 18th (from the highest) in the country. (If we include a local option 0.5% sales tax as discussed elsewhere in this report, Connecticut’s ranking would move up to the 15th highest combined burden.) The chart below shows where Connecticut stands in comparison with neighboring states.

STATE AND LOCAL SALES TAX VARIANCE VS. COMMISSION PROPOSAL

	State Tax Rate	State Tax Rank	Avg. Local Tax Rate	Combined Rate	Combined Rank
Connecticut	6.35%	12	0.00%	6.35%	32
Commission Prop.	7.25%	1	0.00%	7.25%*	18*
New York	4.00%	40	4.49%	8.49%	9
Rhode Island	7.00%	2	0.00%	7.00%	21
New Jersey **	6.88%	6	-0.03%	6.85%	26
Massachusetts	6.25%	13	0.00%	6.25%	35

Note: Rankings expressed with 1 being the highest and 50 being the lowest

*With 0.5% Additional Municipal Sales Tax Option, Ranking Would Drop to 15th

**Salem County is not subject to the statewide sales tax rate and collects a local rate of 3.4375%. New Jersey’s average local score is represented as a negative.

SOURCE: Tax Foundation, 2017

Exemptions: We propose eliminating a material proportion of the current “tax expenditures” (exemptions and deductions) that have proliferated over the years in connection with the sales tax in particular, but also the PIT, corporation tax, and a variety of special purpose taxes. The Office of Fiscal Analysis (OFA) estimates that these various tax expenditures, if repealed, would generate \$5.2 billion in additional revenues in FY 2019. There is a dizzying array of exemptions that have resulted from years of interest group lobbying. While many of these may have sound policy rationale (e.g., cost of collection, avoidance of cascading and redundancy, and conformity with federal or state law), others are not easily defended and reflect lobbying prowess more than public policy. We recommend that the legislature remove approximately 14% of the dollar value of these exemptions in order to produce additional sales tax and other revenues on the

order of \$750 million per year before rate adjustments. Our research has identified numerous exemptions that are not exempt in other states. The governor should immediately direct the DRS to develop options to reach this goal. We further recommend that the legislature instruct the DRS to pursue all reasonable avenues to tax on-line sales, and start by reviewing the approach taken in Minnesota under its recently enacted Marketplace Sales Tax Law.

Estate and gift taxes: While the legislature recently voted to phase out the gift tax, Connecticut remains the only state to have a gift tax and one of only 14 states still to have an estate tax. These taxes are projected to produce only \$176 million in FY 2019, dropping to \$134 million in FY 2021. Because most states no longer have an estate or gift tax, Connecticut is at a significant competitive disadvantage that provides financial motivation for retirees and high net worth families to leave the state. Accordingly, these taxes should be repealed effective immediately.

Increase the minimum wage: While not a tax proposal, the Commission believes Connecticut should increase its statutory minimum wage and take that into account in terms of assessing the overall balance among income groups of our economic proposals. We would support increasing the minimum wage in annual steps from the current \$10.10 to \$15 per hour by 2022, starting with an immediate move to \$11. We are attracted by the approach recently taken in New York which provides for a slower implementation for smaller companies, and we would consider potential variations by age, full or part time status, region of the state, and other factors.

Taken as a package, and they must be treated by the legislature as such, these changes would be highly beneficial to individuals and families, especially those in the lower income brackets. The increases in sales taxes are far more than outweighed by the decreases in income taxes. This is particularly important given the Commission's proposal elsewhere in this report to raise motor fuels taxes in order to refinance the Special Transportation Fund. Even with those increased gas taxes, the net effect for all individual taxpayers is significantly positive. If the Connecticut gas tax was raised by anywhere from 3 to 7 cents per gallon, that would add from approximately \$20 to \$46 per year in taxes per driver, far less than the tax savings headroom provided by the Commission's tax proposals.

Bracket Before	Bracket After	Annual Income (Single) (A)	Estimated Income Benefit	Estimated Sales Tax Impact	Estimated Net Impact (B)	Estimated Net Impact (%) (B/A)
5.00%	3.50%	\$ 25,000	\$ 530	\$ (70)	\$ 460	1.84%
5.00%	3.50%	\$ 40,000	\$ 750	\$ (110)	\$ 640	1.60%
5.50%	4.50%	\$ 60,000	\$ 1,000	\$ (160)	\$ 840	1.40%
5.50%	4.50%	\$ 80,000	\$ 1,200	\$ (210)	\$ 990	1.24%
6.00%	4.50%	\$ 120,000	\$ 1,700	\$ (310)	\$ 1,390	1.16%
6.90%	5.75%	\$ 250,000	\$ 1,880	\$ (640)	\$ 1,240	0.50%
6.99%	5.75%	\$ 600,000	\$ 7,440	\$ (1,530)	\$ 5,910	0.99%

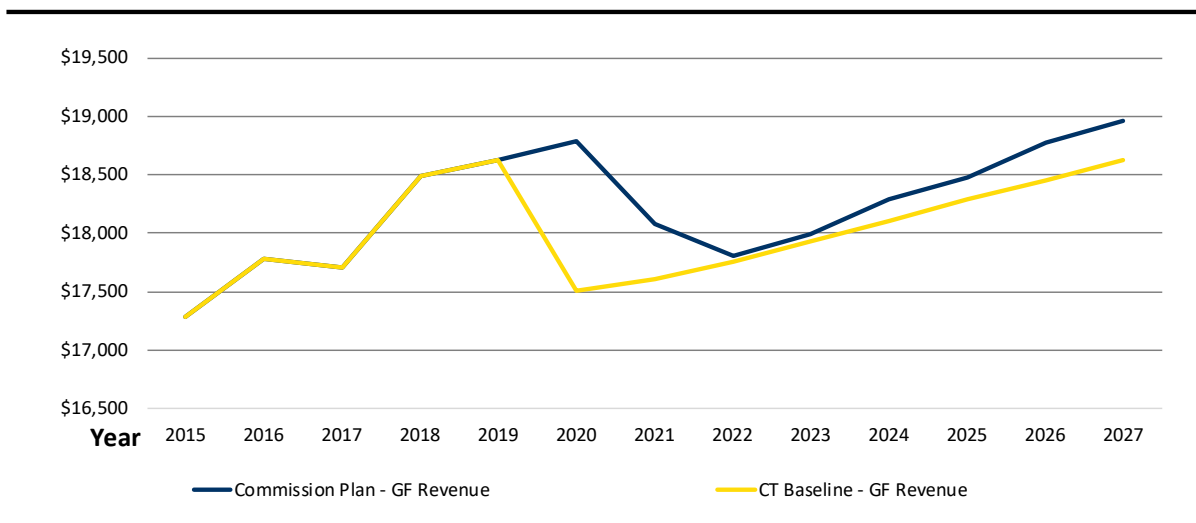
Note:

- All numbers assume average annual spending habits (30% of take-home pay towards taxable purchases)
- Does not include federal tax payments, estimated payments towards social security or 401k or other pre-tax contributions

As noted above, the net impact of this rebalancing of taxes is designed to be revenue neutral, were they all to be enacted and go into effect at the same time. While we do seek their collective enactment in 2018 in order for them to go into effect in July of 2019, the PIT cuts are phased in over three years. This produces a bonus of additional revenues for calendar years 2020 and 2021 when implemented.

The tables below summarize these proposals and show the overall impact on state General Fund taxes and revenues.

Estimated General Fund Revenue - Commission Proposal vs. OPM Baseline



Source: Revenues – Comptroller’s Open Budget FY12 – FY17; OPM Consensus Revenue January 2018
Key Assumptions: All Rate Changes Take Effect IN 2020; Additional Economic Growth Of ~0.5% Assumed In Commission Plan Starting In 2020

In summary, we are proposing a package of tax changes which is pro-growth, saves people money even including likely gas tax increases, is revenue neutral were it all implemented immediately, drives revenue growth in the future, and provides a needed margin in the first two years which should allow for balanced budgets and contributions to the Rainy Day Fund. The legislature should enact this package as a whole in 2018.

AGGRESSIVE AND SYSTEMATIC SPENDING MANAGEMENT

Connecticut has a spending problem. It must be attacked at the same time and in equal magnitude as tax reform, and achieving bipartisan and business support depends on that. We see six major spending management issues that need to be dealt with.

1. The need for and refinement of expenditure management tools: A central structural problem is that neither the legislature nor the executive branch has had an effective system in place to manage expenditures over time. In the case of the legislature, a promising and bipartisan start was made last year in the budget bill. Connecticut now has three “caps”: a spending cap put in place after over 25 years of trying, a so-called volatility cap, and a bonding cap. On top of that and with the strong support of the governor, Connecticut now has on the ballot a Constitutional “lock-box” to keep transportation revenues from being raided from the Special Transportation Fund. We note with pleasure the provision of the volatility cap which would direct surplus amounts above those needed for the Rainy Day Fund to the pay-down of unfunded liabilities. This is an example of the kind of social compact Connecticut needs: state employees will have every reason to join in the effort to grow the economy to be sure their pensions are funded.

We applaud these initiatives but note that in the case of the three caps, which were enacted without hearings, careful follow-up study is needed regarding their potential operation, interaction with each other, and unintended consequences for the budget.

Stepping back, these caps and lock-boxes are a fascinating example of government leaders trying to set boundaries on their own future actions and those of their successors, because they don't trust the system to behave properly.

- 2. The need for realignment in the legislature:** “Boundary limits” are not enough, inside the boundaries Connecticut needs a better legislative budget management system. The General Assembly’s budget system—according to those who are intimately familiar with it—has little coherence. Tax policy should determine revenue, and revenue should determine spending—but it doesn’t work that way. The Finance, Revenue and Bonding Committee attends to revenues and the Appropriations Committee attends to spending. They don’t meet together or work from a common script. In the end, the caucus leaders are typically left to forge a budget.
- 3. Legislative control and collective bargaining:** The legislature has never had proper control over one of the biggest cost drivers—state employee wages and benefits, and teacher pensions. These have been left to collective bargaining between the SEBAC coalition bargaining group, in the case of state employees, and the governor’s office. The legislature only has the right to vote up or down on a negotiated contract. It has been effectively disenfranchised from managing one of the primary elements of the General Fund and the largest component of unfunded liabilities. The Commission was surprised to learn that only four states do it this way. By far the majority of states vest the power to determine pension and retiree health benefit formulas and funding policies in the legislature, rather than in collective bargaining. Getting these decisions more directly into the hands of the legislature where they can be broadly debated, can only drive positive results.
- 4. The Teachers’ Retirement System (TRS):** Teachers’ pension benefits, and the state funding required to pay them, are putting an unsustainable burden on the state’s budget. With the assumption of full funding by 2032, the state will be required to contribute \$2.7 billion to the TRS in that year, implying an annual growth rate in the contribution of more than 6%.⁴² This is not sustainable and must be addressed through a thoughtful restructuring of the funding policy, benefits and certain additional contributions by the state. Part of the solution must include a material reduction of the \$13 billion in unfunded TRS pension liability⁴³, an amount which is artificially low because of the system’s use of an elevated 8% investment return assumption. Assuming a 6% return assumption, the unfunded liability would be \$21 billion. It would require a pay down of \$4.8 billion to get to the national teachers’ pension average of 55.5% funding ratio, assuming a common 6% discount rate. To reach an aspirational goal

⁴² The PEW Charitable Trust, assumed current 8% return assumptions

⁴³ 2017 TRS actuarial valuation report

of 75%, a pay down of \$12 billion is required. The Commission's more detailed proposal in Appendix 2 contemplates a 30 year contribution of the lottery net revenue stream to the TRS pension fund, which would permit an approximate \$7 billion reduction in TRS unfunded liabilities using a hypothetical evaluation.

5. Paying down SERS unfunded liabilities: In addition to the TRS pension liability, the state has built up \$23 billion in SERS unfunded liabilities using a 6.9% investment return assumption.⁴⁴ On that basis, at a 29% funded ratio SERS is among the least well-funded plans in the country. If a more reasonable 6% return assumption were used, the unfunded liability number would grow to \$26.6 billion and its funded ratio would be 29%.⁴⁵ To get to the national state employees' pension funded ratio average of 64.9%, using a common 6% discount rate, a minimum goal which we should set to be competitive, would require a pay down of \$13.6 billion. To reach an aspirational goal of 75% funding ratio, a pay down of \$17.3 billion is required (pension experts would argue that a higher goal of 80% would be preferable). The source of this funding will ultimately have to come through higher minimum contributions and dedicated revenue streams, as in the case of the TRS proposal above, or from growth in the state's economy producing excess revenue above the volatility cap.

6. Non-Fixed, discretionary cost management: The state, under Governor Malloy's leadership, has made excellent strides towards controlling discretionary spending. In fact, non-fixed costs have declined from a peak of \$10.1 billion in FY09 to \$9.1 billion in FY17. However, based on the experiences of Massachusetts and Pennsylvania, a bold and comprehensive review led by a nationally prominent third party consultant such as Bain, Boston Consulting Group or McKinsey & Co. would likely result in expense optimization plans and actions to reduce the non-fixed costs by another \$1 billion without adversely impacting the social service outcomes of the state. This estimate has been reviewed by one of these firms and is considered achievable with a high level of confidence. It is understood that revenue related optimization may contribute a small share of this value creation and that fixed cost reduction opportunities would also be explored. This study should include a review of procurement practices and ways to expand the use of competitive bidding and performance analytics throughout state government. (See Appendix 3)

⁴⁴ Pew Charitable Trusts

⁴⁵ (See FN 44)

PROPOSALS

Based on this analysis, we offer the following proposals regarding legislative process and capacity:

- The legislature should launch an immediate review of the three new caps enacted in 2017, including public hearings, with a view to improving and assuring their effectiveness. In particular, the May 15, 2018 effective date of the bond covenant provision of the volatility cap (the bond lock) should be changed until the end of the 2019 session. In the interim, consideration should be given to attempting to achieve the purposes of the bond covenant by means other than giving controlling influence to bond holders.
- The legislature should create a new leadership-driven Joint Budget Committee to establish aggregate state spending and revenue targets. (See testimony of Alex Knopp, former state legislator and Mayor of Norwalk, before the Commission on January 24, 2018.)
- The legislature should immediately enact statutory language vesting the authority to set state employee and retiree benefit formulas, funding and job protection policies in the hands of the legislature, to take effect upon the termination or renegotiation of any current SEBAC contract. This would be a necessary pre-condition for the Commission's proposed tax changes to take effect. In connection with these changes, the Comptroller should be charged with certifying that any financial or actuarial assumptions used by the legislature in exercising this authority are financially prudent and consistent with best practices.
- The legislature needs to adopt legislation as soon as possible to address the underfunding of the Teachers' Retirement System through a comprehensive reform of benefit and funding policies, the contribution of state assets to the system that would increase the funded ratio and lower the Annual Required Contribution (ARC), and the eventual restructuring of the amortization schedule. Re-amortization, which ultimately adds to taxpayer burdens, should not be undertaken without benefit reform. A more complete TRS reform proposal is presented in Appendix 2, including a plan for dedicating the lottery's net proceeds to the pension plan for a period of 30 years in order to reduce unfunded liabilities by an approximate and hypothetical value of \$7 billion thereby also reducing the ARC payment. Pending a complete review of municipal aid, discussed later in this report, the Commission does not recommend transferring a portion of TRS costs to municipalities.
- In view of the growing complexity of managing the state's finances and overseeing

operations, the legislature should appoint a public-private commission to propose other enhancements to legislative capacity and process. The Commission expresses its view that a poorly paid and part-time legislature may not be adequate to meet the state's needs, and believes that compensation and session length changes may be appropriate.

With regard to the executive branch, the Commission recommends:

- The governor should launch a process to select a consultant to conduct a 4-6 month review of discretionary costs with a goal of presenting its findings to the incoming governor and legislature after the November elections. Implementation would begin shortly thereafter and benefits would be realized over the four year period.

- Immediate benefits can predictably be achieved and continually augmented by deploying a category driven approach (e.g., IT, fleet, goods and services) to generate contract and demand savings on third party spend by the state. Significant recurring savings can be realized from an agency-by-agency spending review and by deploying shared services across central state functions to generate efficiency savings and improve service levels.

Other near-intermediate term opportunities include: using advanced analytics to guide a state payment integrity review across all types of payments should lead to meaningful savings; review the state's health care marketplace, including a detailed analysis of potential care delivery innovations; using digitization to manage and integrate benefits more efficiently and effectively; achieving operational excellence in higher education and social services so as to reduce cost and improve outcomes; increasing tax revenues through enhanced automated processes that will enable better collections with fewer mistakes while reducing fraud waste and abuse; improving the efficiency and outcomes of facilities management programs; and, generating value from the state's capital portfolio including real estate, infrastructure and other assets.

- Longer term benefits include: enhanced capital planning and allocation will increase the value of the state's overall capital portfolio by creating transparency, evaluating existing capital plans and assessing the existing capital planning process to generate savings; comprehensively diagnosing performance of tax and revenue collections, with special attention to sales and use taxes, using deep and rich benchmarks and substantially increasing revenue capture through advanced analytics to detect and address non-compliance and fraud.

- The governor should promulgate a policy favoring privatization or outsourcing of state functions where that would enhance both service quality and cost effectiveness. Clear opportunities exist in the case of home and institution-based social services and in the case of John Dempsey Hospital, and the Commission would support energetic action by the executive branch to pursue them.
- The governor should appoint a public-private task force to examine issues presented by the current SEBAC agreement, including such matters as: the adequacy of Tier IV benefits in terms of attracting new workers; the likelihood of disruptive early retirements being prompted by recent contract changes; the potential to use structured financial transactions to pay down unfunded liabilities; the ability to implement privatization initiatives and how best to protect or buy out current employees in such circumstances; the need for a job freeze; options to remove quasi-public organizations like the Bradley Airport Authority and parts of the University of Connecticut from the SEBAC group in order to enhance their ability to compete for airline contracts and research grants, respectively; the relative equity of benefits among the tiers and between hazardous and non-hazardous categories of employees; the comparability of wages, benefits and funding policies to neighboring states and the private sector; and other related matters. Based on the results of this study, the governor should seek to re-open the current SEBAC contract on a voluntary basis. The Commission is taking no position on these issues, but rather is urging that they be studied by an impartial group outside of the confines of collective bargaining around any particular contract.

TRANSPORTATION IMPROVEMENTS AND REVITALIZING CITIES

All of the Commission's research on the ingredients behind positive economic growth point to the importance of effective transportation systems and vital central cities. These are the key infrastructure "enablers" for businesses and residents and they are high on our list of priorities. Unfortunately, on both counts Connecticut comes up short in terms of competitiveness.

Transportation is obviously a key priority. Investments in transportation have a high return to the state in economic activity and job creation. The Commission spent considerable time reviewing the capital needs of the state's transportation infrastructure as cataloged by the State Department of Transportation. It is the Commission's conclusion that in order to maintain Connecticut's transportation infrastructure and to enhance economic growth, substantial additional capital expenditures are required as well as dedicated revenue streams.

TRANSPORTATION PROPOSALS

The following recommendations are directed to the legislature, governor, and Office of Policy and Management for immediate action:

- Replenish the STF on an urgent basis by providing additional dedicated revenue streams. Further, the Commission supports passage of the Constitutional amendment creating a lock-box to protect any revenues that are provided to the STF. The Commission encourages the legislature not to redirect those revenues away from the STF before they are collected by the lock-box, honoring the spirit of the lock-box Constitutional amendment. The Commission supports the STF receiving the following dedicated revenue streams, in addition to those they receive today:
 - An increase of at least seven cents over four years in the motor fuels tax ("gas tax")
 - Retention of the half cent of sales tax currently contributed from the General Fund
 - Immediate receipt by the STF of the new car sales tax (not phased in over the five years through 2025 as current statute dictates)
 - Creation of tolls on major highways. The Commission regards tolls both as an inevitability (Connecticut is the only state on the Atlantic Coast without them) and as a means of developing a competitive revenue stream for investment purposes
- Transportation revenue streams that do not flow through the General Fund should be dedicated and committed directly to the Special Transportation Fund so it can become self-

sustaining without reliance on sporadic special funding.

- Prioritize capital projects that have the greatest likelihood of producing economic growth, and deprioritize others, while also maintaining a state of good repair on the system as a whole.

Special priority should be given to:

- Highways:
 - Adding extra traffic lanes on I-95 and I-84 in limited key segments to “decongest” at those points
 - Reconfiguring the I-95/I-395 Interchange
 - Improvements on the I-91 Corridor, including improvements to the Charter Oak Bridge
 - Investing in critical projects to ensure all highways are in a state of good repair
- Rail:
 - Speeding rail transit to Manhattan from the shoreline and Hartford by (1) increasing frequency, (2) reducing the number of stops, and (3) using locomotives that do not require transfers in New Haven and CONNDOT should report annually to legislature on progress in that regard
 - Invest in direct rail service from Hartford and the shoreline to Manhattan’s West Side at Penn Station
 - Building the long-awaited parking garages in Stamford and New Haven
 - Investing in critical projects to ensure all rail segments are in a state of good repair
- Air:
 - For Tweed airport, repeal as soon as possible the legislation limiting runway length
 - For Bradley Airport, fund a \$10 million airline revenue guarantee fund to enable the CAA to negotiate for better service to high priority business destinations (e.g., West Coast and London)
- Bus Transit:
 - Evaluating the consolidation of the 26 transit districts and other steps to improve that service
- Ports:
 - Connecticut’s deep water ports in New London, New Haven and Bridgeport are an underutilized resource and should be the subject of a study by CONNDOT, DECD and the CT Port Authority to recommend a program of investments.
- The state should intervene as necessary to ensure CONNDOT is able to expedite projects that foster economic growth, including expediting local government approvals and permits.

- Bonding for CONNDOT should be done through Special Tax Obligations (STO's) only, and used for limited long-term capital projects. CONNDOT operating expenses should not be funded through bonds (as is sometimes current practice).
- Authorize new state funding sources and Public Private Partnership legislation that will enable Connecticut to utilize new federal or privately funded infrastructure programs, specifically to address limitations of the current 20-year Special Transportation Fund bond program.
- The budget should provide CONNDOT, the CAA, and the CT Port Authority with adequate human resources to plan and execute the capital projects the Commission recommends above.
- Current projections indicate that without a change in capital needs or without enhanced revenue streams, revenues in the out years (8 years+) will be insufficient to cover debt service for all the transportation projects currently contemplated. Therefore, CONNDOT's future capital projects in the pipeline need to be evaluated in detail at least biannually to determine the effect of possible technological changes (such as autonomous vehicles), to update the cost benefit analysis of such projects, and to determine methods of funding them.

The Commission believes the governor and the legislature in particular must approach the state's transportation needs with a longer-term perspective. This entails providing revenues to CONNDOT that will support a bonding program and pay-as-you-go investments in critical projects, with a multi-year view as to what revenues will be allocated to CONNDOT. Because of the nature of these longer-term investments, CONNDOT's ability to drive investment in Connecticut's critical infrastructure is constrained each time its budget is cut to enable the state to balance out its other expenditures.

Cities are a critical asset to all of our state's residents, whether they live there or not. Vital urban cores make for strong regions and support the entire metropolitan area and state with critical cultural, health care and higher education institutions. Given our focus on economic growth, vital cities are especially important because that's what job creators want in order to draw the talent they need.

In Connecticut, cities are challenged by several structural factors: they are relatively small and lack the ability to grow by annexation, there are no strong regional governments with which they can plan joint projects and share benefits and burdens and they are uniquely burdened by their concentrations of tax exempt property. Most importantly, they are saddled with high property

taxes that disadvantage them in the competition for businesses and residents. “While business owners and developers of housing for millennials must pay 74.29 mills on the assessed value of their property in Hartford, property tax rates in towns such as Simsbury, Bloomfield, Windsor, Wethersfield, Rocky Hill and Newington are less than 40 mills.”⁴⁶

The issue of urban schools cannot be ignored when discussing cities. Without good schools, Connecticut cannot have stable and attractive city neighborhoods. The Commission appreciates the complexity of this subject and has no legislative proposals to advance at this juncture, but recommends further study.

CITIES PROPOSALS

With respect to cities, we make the following recommendations to the legislature for immediate action:

- Expand to at least two other cities the model created by the Capital Region Development Authority (CRDA), a quasi-public agency that has been successful in Hartford. This entity would be leveraged by cities that wish to voluntarily utilize it to lead the development of high profile and high impact projects. It would be adjunct to municipal powers, applied as needed, and be released once the project reaches its completion milestones. There are several components to the CRDA model which could be considered for inclusion in a new entity: a board comprised of senior-level private sector leaders and municipal officials, a project team with a strong leader and small but capable staff, and a stable source of capital funding from the state to leverage private sector investment (but not grants). We recommend a reservation of \$50 million in bonding per year for each of up to three cities, once they are fully up and running.
- In the short-term, the Commission suggests to more fully fund the PILOT program with respect to state-owned property in central cities. In the longer-term, Connecticut needs a thorough review of the state’s municipal aid formulas with a view to mitigating the property tax “need-capacity gap” between its central cities and their suburbs.

Appendix 5 includes additional information on the Commission’s thinking with regards to cities.

⁴⁶ Bill Cibes, *ibid*, p. 9. See also New England Public Policy Center at the Federal Reserve Bank of Boston: “measuring Municipal Financial Disparities in Connecticut”, Spring, 2015.

TARGETED STRATEGIES TO DRIVE ECONOMIC GROWTH

Appendix 4 contains a comprehensive series of proposals which, when implemented in concert with the Commission's other recommendations, provides an integrated approach to catalyzing above average economic growth for the state. In the body of this report we single out some of the key recommendations and incorporate the comprehensive proposal included in the appendix by reference. For purposes of this summary, we condense our work under three headings: (1) supporting the growth of Connecticut's highest potential sectors, (2) developing and retaining the workforce Connecticut needs, and (3) transforming the business environment for entrepreneurship and innovation.

Under the heading of high potential sectors, we urge focused support in three areas: "InsurTech" (the intersection of insurance and financial technology), advanced manufacturing, and innovative healthcare delivery and biotech. The analysis of Connecticut's workforce issues identifies three imperatives: Connecticut needs to increase the quality and quantity of STEM talent, raise the national profile of its universities and intensify efforts to attract and retain talent. Finally, in order to stimulate entrepreneurship and innovation, our analyses examined improving the environment for small business, improving access to capital and other resources, and strengthening the support system of accelerators, incubators and labs.

PROPOSALS

Appendix 4 contains numerous proposals directed to the private sector, public and private higher education institutions, and the ecosystem of support organizations. In this report, we single out the key recommendations directed to the legislature and executive branch.

- Inspired by the Roosevelt Island model in New York City, Connecticut should authorize the creation of a new, nationally competitive STEM campus in Hartford, New Haven or Stamford. The governor should launch an RFP process to recruit an in- or out-of-state university to lead this effort to enhance the advances already being made in STEM by Yale, UConn, and the state universities. The legislature should direct the executive branch to embark on this project and to hire a specialist consultant to assist.

- The importance of enhancing The University Of Connecticut’s (UConn) status as a leading national research university cannot be overemphasized. While a lot of legislative attention has been devoted to reducing UConn’s budget and the number of highly paid professors, not enough effort has been spent on building its stature as a great public research institution and to measuring the ongoing success of the University’s board and leadership. The legislature should consider appointment of a special Commission to determine what it would take to transform UConn into a top 10-15 US public university by 2025.
- Connecticut needs new state financial incentives to attract and retain STEM graduates and millennials in general. This could take the form of student loan payments or forgiveness, tax credits, or mortgage subsidies. The Rhode Island “Wavemaker” program offers one model.
- Connecticut needs to focus and fund DECD efforts to support incubators, accelerators, and analytics to assist the four key sectors, and to optimize the use of stranded tax credits as part of this effort.
- The governor or legislature should create a Red Tape Commission, similar to New Jersey. The target should be to rationalize existing regulations, as well as set guidelines for future regulations. To support this effort, a zero-based regulatory policy should be established — any new regulations must be offset by eliminating old ones.

EXPANDED MUNICIPAL REVENUE SOURCES AND REGIONAL INITIATIVES

While our legislative charge focuses the Commission on fiscal stability and economic growth at the state level, we found that we could not ignore issues that lie at the junction of the state and its municipalities and among the municipalities. The towns are the legal creatures of the state and the state and the towns are mutually dependent.

We had many witnesses who spoke to these issues and we have organized their concerns into three main categories: (1) the virtually total dependence by the municipalities on the property tax and on uncontrollable levels of state aid; (2) the way in which the state imposes added financial burdens on the towns through labor-related requirements; and (3) the need for more state support for nascent regional and shared services initiatives.

On the first category, there is no disputing the point that the towns are unable to do much to diversify their sources of revenue—they have one direct taxing power, the regressive

property tax. At 40% of total taxes, Connecticut does rely more heavily on the property tax than Massachusetts (36%), New York (31%), or the US as a whole (31%). The state's level of municipal aid is relatively low, though not out of line with some neighboring states. Using 2015 numbers, Connecticut sends 24% of its own revenues (excluding federal transfers) to its local governments, compared to the 36% average for all states. The Commission further finds the state's current approach to municipal aid to be fragmented and unpredictable. In FY 2017 there was over \$600 million allocated, outside of education funding, in at least nine categories of seemingly discretionary grants (e.g., PILOT payments, road projects, "municipal aid projects", and the \$175 million Municipal Aid Revenue Account or MRSA).

Particular attention was devoted by local representatives in our hearings to three labor-related issues: the process in Connecticut for binding arbitration which requires arbitrators to select between the "last best offers" of the parties rather than something in between, the continued requirement to use union labor or "prevailing wage" on local projects (although this problem was partially alleviated in the 2017 budget legislation), and the difficulty in implementing multi-town projects when the bargaining units in each town must agree. Finally, we were pleased to hear strong support for Council of Governments (COGS) and regional initiatives, tempered by frustration that there was so little support from the state for these efforts.

By way of preface to our recommendations in this section we believe that Connecticut's landscape of 169 separate towns and no county government is not likely to change soon, and the Commission chose not to tilt at those windmills. However, important steps can be taken to support our municipalities and their efforts at regional collaboration.

PROPOSALS

The Commission urges the legislature to take the following steps:

- Municipalities, acting separately or together through COGS, should be authorized to charge fees for:
 - Use of public rights of way, storm water fees, hotel, car rental, restaurant and other services;
 - "SILOTS"—service fees in lieu of taxes—to non-profit colleges and hospitals, while continuing to allow those institutions to retain their property tax exempt status.

- Municipalities, COGs or consortia of COGs should be authorized to impose supplemental time-limited sales or property taxes by special referenda to fund discrete capital projects. Models exist in other states (e.g., Wyoming’s Special Purpose Excise Tax (SPET) or California’s voter-approved special purpose taxes).
- The state should change the binding arbitration requirements with regard to municipal employees and teachers to permit so-called “binding interest arbitration” instead of “last best offer”, thereby allowing arbitrators to make compromise awards. Consideration should also be given to requiring the consent of both parties to enter into binding arbitration and to setting time limits on the process. In assessing the financial capability of the municipality in an arbitration process, there should be an irrefutable presumption that a budget reserve of 15% or less is not available for payment of the cost of any item subject to arbitration under the Municipal Employees Relations Act and the Teacher Negotiation Act. Finally with regard to arbitration, the system should be changed to provide for the random selection of a single neutral arbitrator.
- Prevailing wage laws should be further amended to permit use of non-union labor on rehabilitation projects costing less than \$1 million, replicating the change made for new construction in 2017.
- Require municipal unions in towns proposing shared services arrangements to create a coalition collective bargaining agent that would apply to such arrangements.
- Give regionalization a major boost by empowering COGS to levy an additional sales tax of up to 0.5% (approximately \$400 million assuming base expansion) to be used solely for regional economic development and shared service arrangements.

We further ask that the governor:

- Convene a public-private task force to study and make recommendations to rationalize and make the state’s various municipal aid programs more predictable (see also the related proposal under cities, above);
- Apply under existing federal law to have the COGS receive federal designation as counties, in order potentially to qualify for additional federal funding.

LINKED ENACTMENT

As we formulated our proposals, we encountered considerable skepticism that the General Assembly would be able to deal with and ultimately enact our proposals as a package. Yet, they

were developed with a view to assuring shared benefits and burdens across sectors.

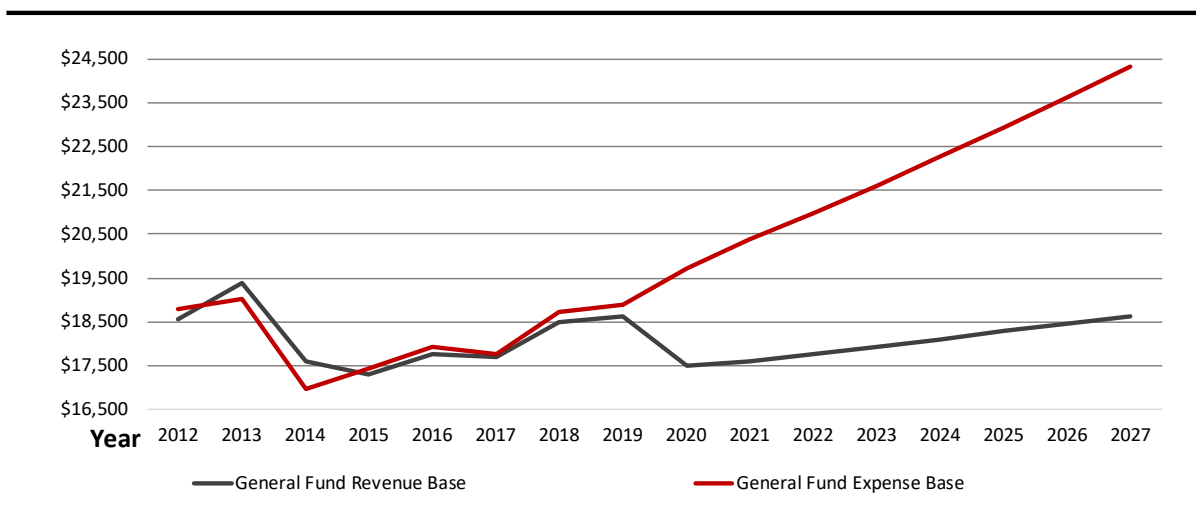
To deal with this important concern, we propose phased and conditional implementation. We would seek enactment of all the tax proposals in 2018, for implementation in July 2019 at the start of FY 2020. Implementation would be conditioned, however, on the General Assembly's enactment in 2018 of our recommendations regarding collective bargaining and binding arbitration and by the governor's implementation of the recommendation regarding a consultant-led cost management study and the resulting development by the governor of a proposal to extract \$1 billion in annual cost from state expenses.

This kind of cooperative and reciprocal action among parties at interest would be unusual, but consistent with the "grand bargain" we propose.

A PATH TO FISCAL STABILITY IN THE NEXT BIENNIUM AND BEYOND

To assess the overall budgetary impact of its recommendations, the Commission used as a baseline the OPM/OFA General Fund consensus revenue projections for both the current and the next biennium. In the chart below you see the growing magnitude of the issues the state faces both in the near and long term.

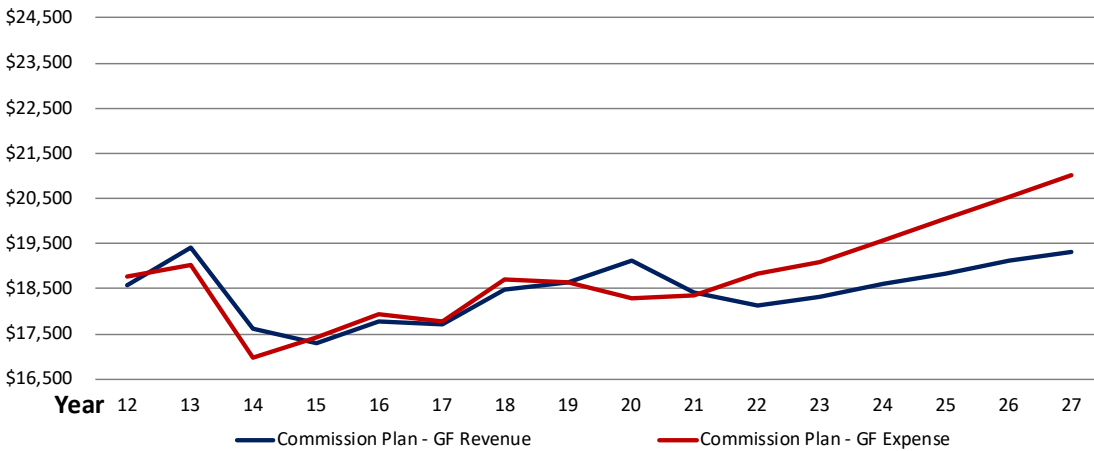
GENERAL FUND SURPLUS/DEFICIT PROJECTIONS - CURRENT POLICY



Source: Revenues – Comptroller's Open Budget FY12 – FY17; OPM Consensus Revenue January 2018 | Expenses – OFA Fiscal Accountability Report FY17 – FY20 & October Out Year Estimates
Key Assumptions: Fixed costs are growing at an average of ~5.5% each year; Total General Fund expenses growing at 3% in future years past 2022

These projections show growing annual deficits on the order from \$3 billion to \$6 billion in the FY 2022-FY 2027 period following the next biennium—clearly an unsupportable prospect.

The next chart depicts the surplus/deficit projections under the Commission’s plan, with four important assumptions: (1) the same reversal of the \$1.2 billion in so-called “structural revenue issues” (e.g., restoring the hospital tax and not funding the new MRSA program) that the governor recently recommended for the next biennium, (2) lowered TRS costs pursuant to our own proposal (see Appendix 2), (3) the success of the \$1 billion cost reduction effort called for in our plan—an obviously essential part of the plan and (4) an additional 0.5% of economic growth driven by the growth related initiatives and the pro-growth tax policy.



SOURCE: Revenues – Comptroller’s Open Budget FY12 – FY17; OPM Consensus Revenue January 2018 | Expenses – OFA Fiscal Accountability Report FY17 – FY20 & October Out Year Estimates; CT Tax Expenditure Report February 2018
 Key Assumptions: All Tax changes are implemented in 2020 | Payroll Tax – OPM Population data; CT SBA Office of Advocacy

GENERAL FUND SURPLUS/DEFICIT PROJECTIONS - COMMISSION PLAN

This projection suggests that the Commission’s plan can deliver balanced budgets through the next biennium, and also reduce the negative balance by over half in the out years.

Our plan for Connecticut “buys time” on fiscal stability. It should allow the state to enjoy balanced budgets through the next biennium, however the deficit from FY 2022-FY 2027 remains in the magnitude of \$1 billion - \$2 billion. As seen in the chart, the plan does provide ~\$800M surplus in 2020 due to the timing of tax plan phasing. The legislature could use these funds to: 1) assist with balancing the General Fund deficits in the near term, 2) solidify Rainy Day Fund, as the US

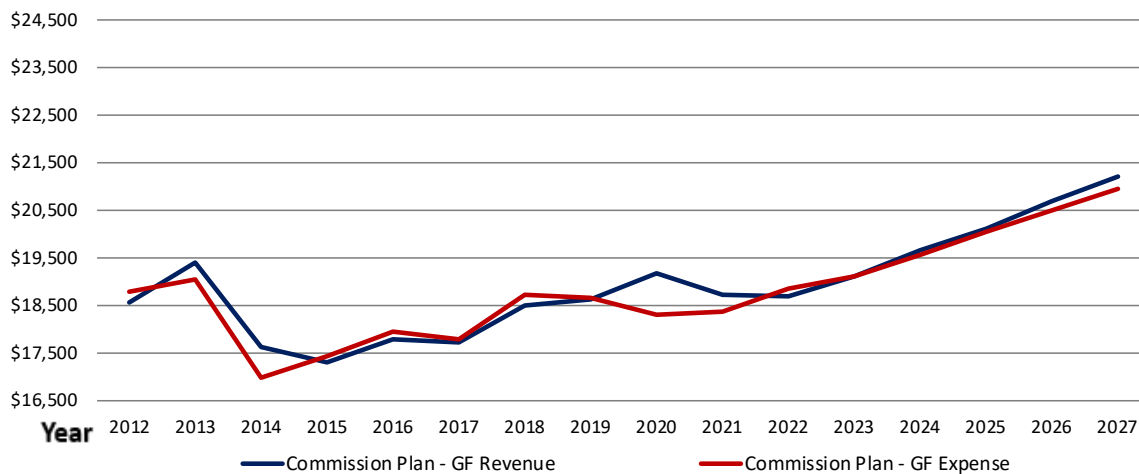
economy is now eight years into one of its longest post-war expansion 3) fund various growth initiatives proposed in this report.

That said, it leaves more to be done to achieve sustainably balanced budgets beyond FY 2021. At that point there should be several levers that policy makers can chose:

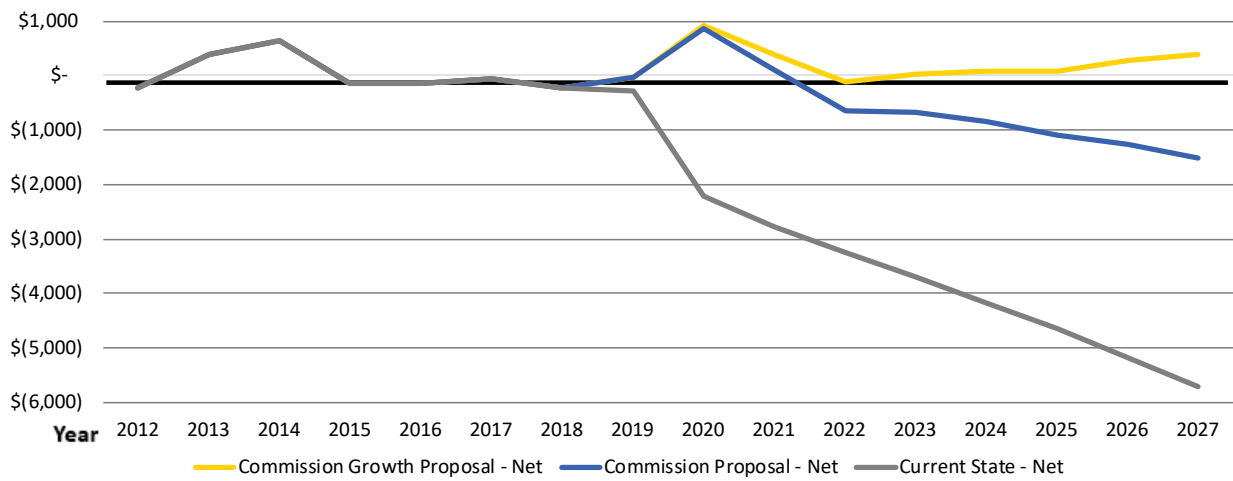
- Further expense reductions through modifications in Medicaid, voluntary reopening of SEBAC, privatization and outsourcing to achieve efficiency, and additional structured Asset Transactions that can lower ARC payments and unfunded liabilities; and
- Selective revenue enhancements financed through growth or by tax base expansion.

If these changes are made and the state takes to heart the vision/goals presented by this Commission, there is a path forward. If you assume the 3%+ growth in the “straw-man” vision presented by this Commission (in this case using 3.5% GSP), the below charts shows that a path back to a balanced budget is possible with the potential for a surplus of ~\$250M by FY 2027.

GENERAL FUND SURPLUS/DEFICIT PROJECTIONS - COMMISSION PLAN (GROWTH ASSUMPTION)



Source: Revenues – Comptroller’s Open Budget FY12 – FY17; OPM Consensus Revenue January 2018 | Expenses – OFA Fiscal Accountability Report FY17 – FY20 & October Out Year Estimates; CT Tax Expenditure Report February 2018
 Key Assumptions: All Tax changes are implemented in 2020; | Payroll Tax – OPM Population data; CT SBA Office of Advocacy; Assume the pro-growth tax initiatives enable roughly 3% increased basis growth each year achieving our goal of a 3% – 3.5% Average GSP in 5-10 years



Source: Revenues – Comptroller’s Open Budget FY12 – FY17; OPM Consensus Revenue January 2018 | Expenses – OFA Fiscal Accountability Report FY17 – FY20 & October Out Year Estimates; CT Tax Expenditure Report February 2018
 Key Assumptions: All Tax changes are implemented in 2020; | Payroll Tax – OPM Population data; CT SBA Office of Advocacy; Assume the pro-growth tax initiatives enable roughly 3% increased basis growth each year achieving our goal of a 3% – 3.5% Average GSP in 5-10 years

GENERAL FUND SURPLUS/DEFICIT PROJECTIONS - NET PLAN COMPARISON

SUMMARY AND CONCLUSIONS



SUMMARY AND CONCLUSIONS

In summary, Connecticut's platform is burning. By every measure—constant budget imbalances, growing unfunded liabilities, falling bond ratings, stagnant economic growth, competitive disadvantages compared to neighboring states on most important indices, increasing outmigration—the situation is at a crisis point.

The legislature must act, and we believe it wants to do so. It is often difficult to act boldly if you are not quite sure what to do. The legislature needs a plan, and we have presented one that we believe can appeal to all segments and get Connecticut back on the road to recovery. It is also difficult for a legislative body to act in the absence of support. Through our hearings and many conversations across the state, we believe there will be support for this plan. So the time to act is now, in this session of the General Assembly.

No doubt the breadth of our report might seem daunting—we offer over 30 discrete proposals and over one hundred pages of research and analysis. Let us simplify, while all of our recommendations have merit, we have outlined what appears to us to be the ten most important for immediate action.

- 1) PRO-GROWTH TAX REFORM
- 2) INCREASE THE MINIMUM WAGE IN SEVERAL STEPS
- 3) CREATION OF A JOINT BUDGET COMMITTEE IN THE GENERAL ASSEMBLY
- 4) ASSUMPTION BY THE LEGISLATURE OF RESPONSIBILITY FOR SETTING THE KEY TERMS OF FUTURE EMPLOYEE CONTRACTS AND FRINGE BENEFITS, WITH SIGN-OFF BY THE COMPTROLLER
- 5) REFORM OF THE TEACHERS' RETIREMENT SYSTEM
- 6) ORGANIZATION BY THE EXECUTIVE BRANCH OF AN EFFORT TO TAKE \$1 BILLION OUT OF SPENDING
- 7) REPLENISHING OF THE SPECIAL TRANSPORTATION FUND
- 8) EXTENSION OF THE CRDA MODEL TO TWO OTHER CITIES
- 9) EXECUTIVE BRANCH LED GROWTH INITIATIVE INCLUDING CREATION OF A NEW NATIONALLY COMPETITIVE STEM CAMPUS IN ONE OF CONNECTICUT'S MAJOR CITIES
- 10) DIVERSIFICATION OF MUNICIPAL REVENUE STREAMS AND GIVING COGS AN AVENUE TO RAISE MATERIAL FUNDING TO CARRY OUT REGIONAL SERVICE INITIATIVES

The Commission itself, under its enabling legislation, goes out of business on March 1st. We hope that many of the Commission's members will become part of a reconstituted group of private citizens, affiliated with our non-profit support organization, Connecticut Rising. We want to be able to testify and advocate in support of our plan and we invite everyone in Connecticut to join the movement.

We are honored to have been chosen to do this important work.

Respectfully submitted,

BOB PATRICELLI

GREG BUTLER

JIM SMITH

ROXANNE COADY

PAT WIDLITZ

ENEAS FREYRE

BRUCE ALEXANDER

DAVID JIMENEZ

FRANK ALVARADO

JIM LOREE

MICHAEL BARBARO

PAUL MOUNDS JR.

CINDI BIGELOW

CHRISTOPHER SWIFT



APPENDIX



APPENDIX 1

1. Commission organization and work:

- The Commission was formally created by the General Assembly in section 250 of PA 17-2, signed on October 31, 2018. Most of its 14 members and the two co-chairs and vice chair were appointed by the governor during the week of December 11, and the last member was appointed in January. By statute, the Commission ceases to exist on March 1, 2018.
- In the two and a half months of its existence, the Commission has held seven public hearings, five in Hartford and two in New Haven; heard testimony from over 40 individuals and groups; and reviewed thousands of pages of submitted testimony and research.
- There have been numerous meetings with executive branch staff and with private individuals and groups, supplemented by access to dozens of research reports and the product of prior commissions.
- To organize its research, the Commission organized into “work streams”. These were not subcommittees with any delegated policy making authority, but research groups. The co-chairs sat in on all work streams. They included:
 - Fiscal stability and the Teachers’ Retirement System, led by Jim Smith and Pat Widlitz;
 - Competitiveness, Tax, and Economic Growth, led by Jim Loree;
 - Spending Management and Municipal Aid, led by Bob Patricelli;
 - Transportation and cities, led by Bruce Alexander;
 - Communications, led by Greg Butler.

We are tremendously grateful for the extra workload taken on by our work stream leaders.

- Immediately after the Commission legislation was passed, a non-profit organization- Connecticut Rising, Inc.-was formed to pursue research and public education in the general area of fiscal stability and economic growth, and to raise funds to hire consultants to support the work of the Commission. CT Rising is applying for IRS designation as a section 501c(3) entity. Its board of directors is comprised of Bob Patricelli as President, Jim Smith, and Alan Kreczko. To date, contributions of \$100,000 each have been received from Robert Patricelli, Webster Bank, and Yale University. More contributions are expected from entities associated with Commission members and others.

2. Grateful acknowledgments:

The Commission could not have done its work, especially on its accelerated timetable, without the dedicated work of numerous consultants and a large number of volunteers. We acknowledge their extra effort and thank them for their high quality work and patience.

- Our research and policy consultants have included:
 - McDowell Jewett
 - McKinsey & Company
 - Millstein & Company
 - The PEW Charitable Trust (volunteer)
 - Spencer Cain Associates
- Our individual volunteers are more than we can count, but include many employees of our members' own companies and organizations.

We simply could not have done this work as a diverse group of 14 volunteers without the dedicated effort of this corps of consultants and volunteers. We will be forever grateful.

A special word of thanks to the many senior officials of the executive branch who patiently met with us, answered our many question and advised on policy, especially Commissioners Catherine Smith of DECD, Kevin Sullivan of DRS, Jim Redeker of CONNDOT, Rod Bremby of DSS, Secretary Ben Barnes of OPM, Attorney General George Jepson, Controller Kevin Lembo, and Treasurer Denise Nappier, and their senior staffs.

To Tom Spinella, the Administrator of the Joint Committee on Finance, Revenue and Bonding, who flawlessly handled our administrative affairs as a public body, set up our government website and hearings, and handled our scheduling-you enabled our entire process, thank you!

The final word of thanks goes to our "appointing authorities": Governor Malloy and the six legislative caucus chairs, Senators Looney, Fasano and Duff, and Representatives Aresimowicz, Klarides, and Ritter. You trusted this process of private sector participation, and we hope that our report fulfills your expectations.

March 1, 2018

APPENDIX 2

REFORM THE TEACHERS RETIREMENT SYSTEM

Key Recommendations:

- **Building on the 2017 SEBAC deal, implement legislation to revise the benefit structure, funding policy and amortization schedule for the Teachers Retirement System (“TRS”), in exchange for the contribution of a 30-year stream of the State’s lottery net income to reduce TRS’s unfunded liabilities and its annual required contribution (“ARC”).**

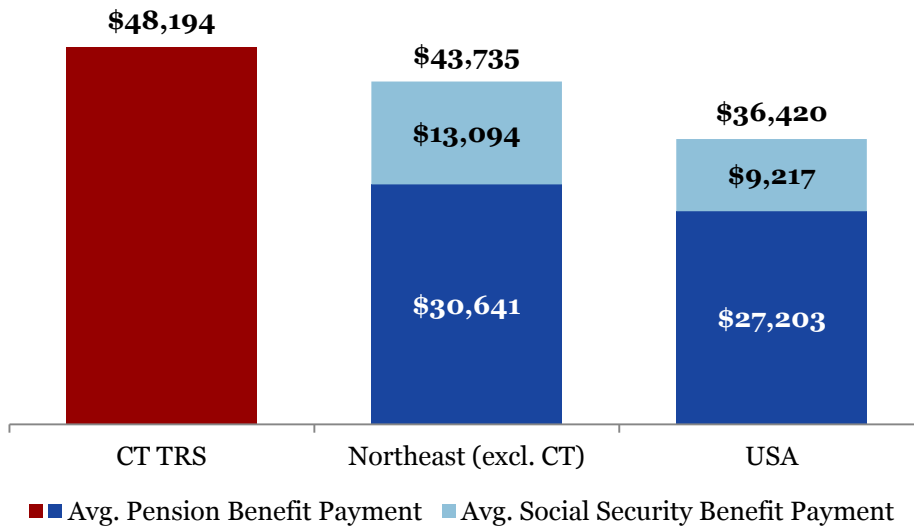
Rationale:

Three key factors determine the overall health of any pension system – the amount and timing of benefits to be paid to employees and retirees, the balance of assets in and ongoing cash contributions made by plan sponsors to the fund, and the returns on the fund’s invested assets. A confluence of historical issues related to each of these factors has caused Connecticut’s two main pensions, SERS and TRS, to be financially challenged. As a result, the contributions now required to be made to these two systems have placed significant pressure on Connecticut’s budget and are crowding out spending on other programs. The following section addresses these issues and the Commission’s recommendations related to TRS in particular.

While teachers are employees of municipalities and towns in Connecticut, which set their salaries and wages, the pension liability of TRS is borne by the State. TRS’s funding policies and benefits are set by the Legislature through statute and are not subject to collective bargaining.

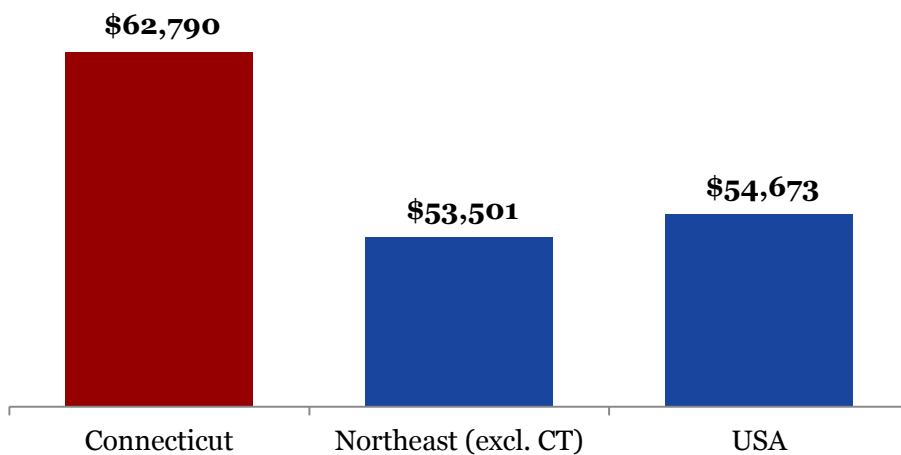
TRS’s pension benefits are relatively generous when compared to benefits provided to public teachers nationwide, both for states where teachers can participate in Social Security, and those whose teachers are ineligible for Social Security. Connecticut is one of 15 states where teachers are partially or entirely ineligible for Social Security. A comparison of Connecticut teachers’ benefits to other states, both including and excluding Social Security, shows that Connecticut’s average benefit payment for public teachers is higher than the Northeast and U.S. averages. The difference between Connecticut’s benefits and those of other states including Social Security may be understated, as it does not account for the annual contributions that must be made by teachers in other states to earn Social Security when they retire.

Average Pension and Social Security Benefit Payments per Beneficiary as of FY 2016¹



These benefits drive the size of the overall pension obligation and are high even as State teachers are paid average annual wages that are approximately 17% and 15% higher than those of state teachers in the Northeast and across the nation, respectively.²

Average Annual Wages per State Teacher as of FY 2016²



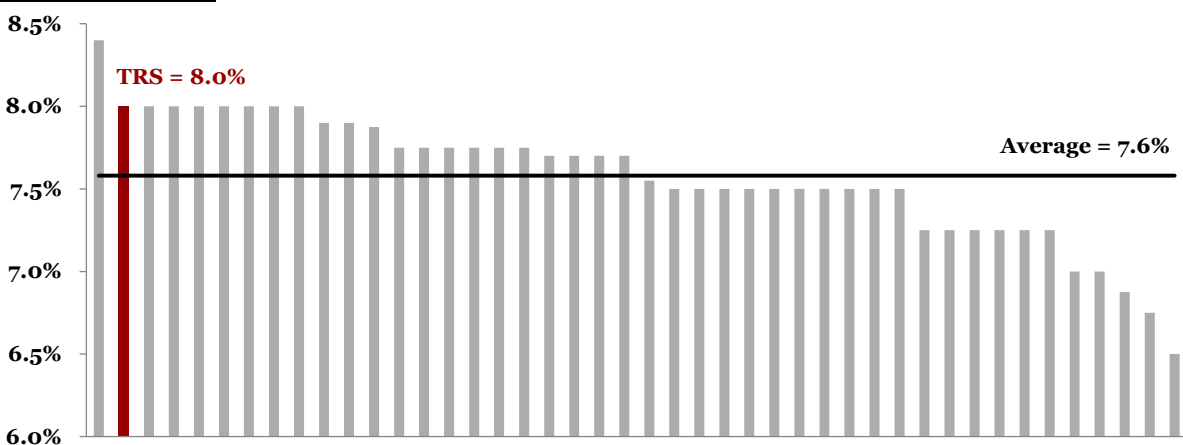
¹ Average Pension Benefit Payments: The Pew Charitable Trusts. Average Social Security Benefits: Social Security Administration, "OASDI Beneficiaries by State and County, 2015," published August 2016. Teachers in states that at least partially exclude teachers from Social Security are designated as receiving no Social Security benefit payments for purposes of the comparison.

² Average annual wage salary data for elementary and secondary school teachers, junior college teachers, and college and university teachers. Averages assume equal weighting across states. Quarterly Census of Employment and Wages – Bureau of Labor Statistics, 2016.

Over many years, Connecticut did not provide TRS with adequate funding to cover the accrual of these future benefit payments, causing the system's unfunded liability to grow. Between 1983 and 2014, inadequate contributions caused \$5.5 billion of the \$8.5 billion net increase in the TRS Unfunded Actuarial Accrued Liability ("UAAL").³

Further, the State calculated its pension liabilities using investment return assumptions that, at the time, were among the highest of all states and far exceeded the funds' actual investment returns. Even after being reduced from 8.5% to 8.0% in FY 2017, TRS's investment return assumption ("discount rate") is still among the highest across the 44 largest teachers' pension systems.

Comparative Discount Rates for Public Teachers' Retirement Systems (As of February 2017)⁴



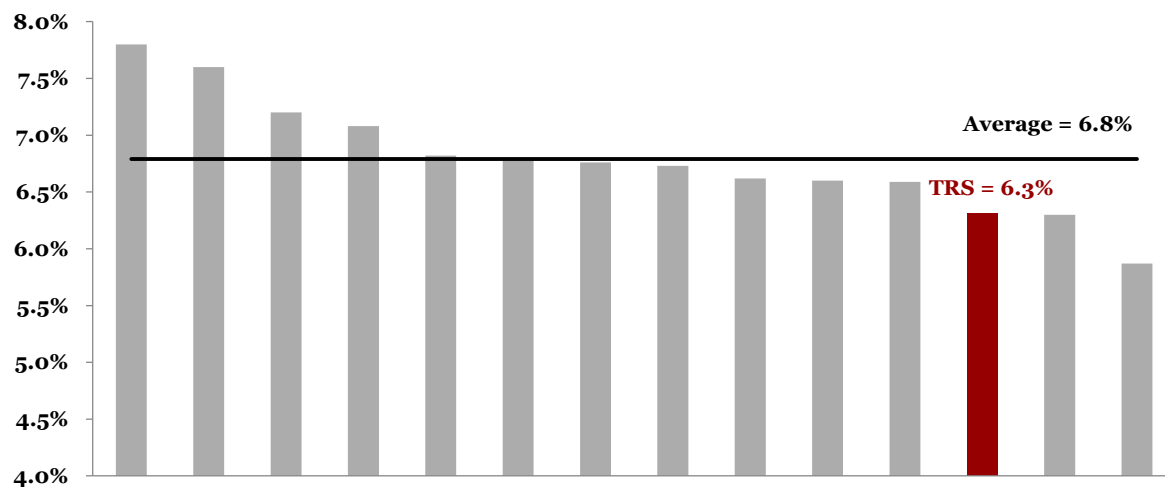
The fund's current discount rate assumption far exceeds both realized annualized returns and returns of other teachers' retirement systems. The fund's returns are well below the returns of other teachers' retirement systems, as evidenced by a Pew study comparing results for the 14 largest public teachers' systems for the 10-year period through FY 2015. As shown below, TRS realized a 10-year annualized return of 6.3% through 2015 as compared to the average for teachers' retirement systems of 6.8%. TRS's investment return deteriorated even further over the most recent 10-year period through FY 2017 to 5.6%.⁵

³ Final Report on Connecticut's State Employees Retirement System and Teachers' Retirement System, Center for Retirement Research at Boston College, November 2015. Inadequate contributions defined as (1) calculating an annually required contribution below the amount required to keep the unfunded liability from growing each year (i.e., using a level percent of payroll approach that, even if paid, allows the UAAL to grow for many years before declining) and (2) making a payment less than the calculated annually required contribution.

⁴ Based on the 44 largest public teachers' pension funds. NASRA, "NASRA Issue Brief: Public Pension Plan Investment Return Assumptions," updated February 2017.

⁵ Reported net of all fees and expenses, for ten years ending December 31, 2017. CT Treasurer's Office Pension Fund Performance.

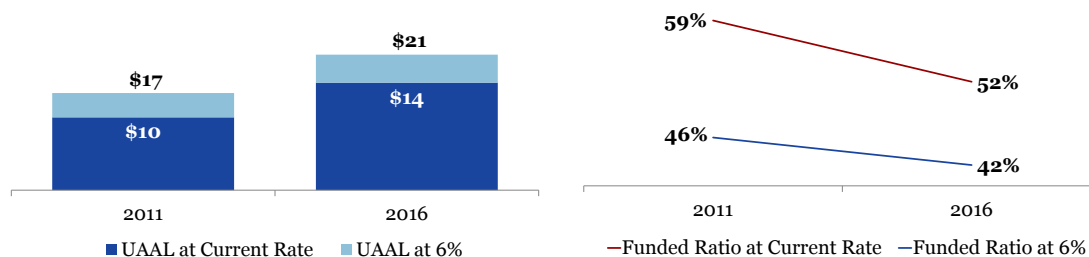
10-Year Investment Return for Public Teachers' Retirement Systems (Through 2015)⁶



The combination of a high investment return assumption and less-than-expected actual returns caused the State to consistently underestimate the amount of its pension funding requirements, allowing liabilities to accrue and exacerbating the underfunding issue.

As a result of all of these issues, the TRS ratio of assets to its total future liabilities (the “funded ratio”) was at the relatively low level of 52% in FY 2016. Using a more realistic return assumption of 6%, the funded ratio would be even lower at 42%.⁷

TRS Unfunded Pension Liability and Funded Ratio at Current and 6% Investment Return Assumptions (\$ in billions)⁷



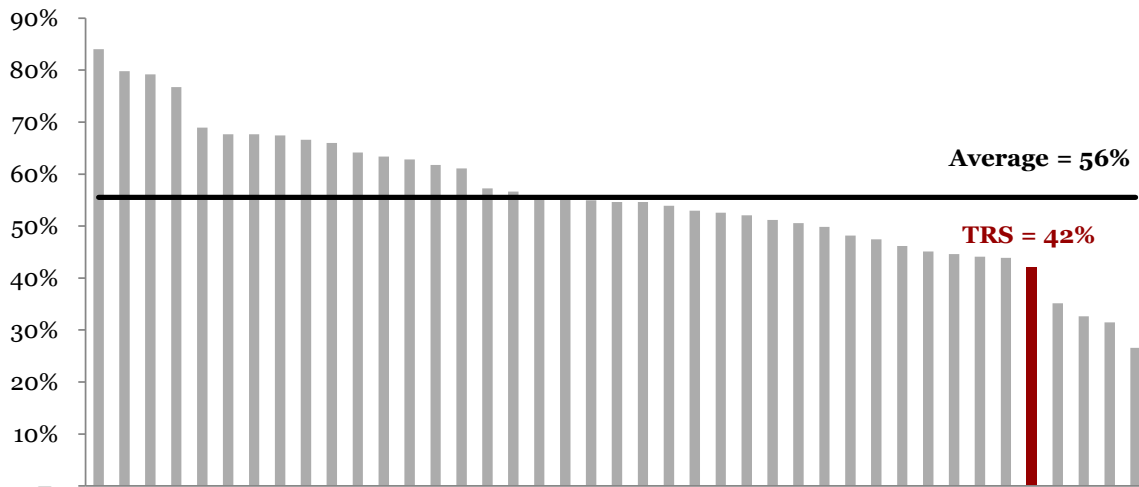
By contrast, public teachers’ pension systems nationwide had an average funded ratio of 66% in FY 2016. Assuming a uniform discount rate of 6% across all teachers’ plans for 2016, the average funded ratio would be 56%.⁸

⁶ Based on the 14 largest public teachers’ pension funds that report net of fees and on a June 30 fiscal year basis. The Pew Charitable Trusts, “State Public Pension Funds Increase Use of Complex Investments,” dated April 2017.

⁷ Valued using a blended discount rate weighted by reported liabilities. UAAL based on market value of assets and liabilities adjusted using formula based on AAL sensitivity and convexity. The Pew Charitable Trusts.

⁸ Includes teacher plans and university plans. The Pew Charitable Trusts.

FY 2016 Funded Ratios for 41 Public Teachers' Retirement Systems at a Uniform 6% Discount Rate⁸



Finally, current law provides for TRS to be fully funded by 2032. This policy, however, causes the ARC to spike to an unsustainable level for the State, which the State is unlikely to meet given its other obligations.

The Commission believes that each leg of the pension stool (funding levels, return assumption and benefits) must be addressed separately and sustainably in order to ensure the long-term health of TRS.

Specific Recommendations:

The Commission recommends that the State enact the necessary legislation to reform the TRS system, by addressing each of the three components of the TRS problem as follows:

Fund Assets and Cash Flow

- By June 2019, irrevocably contribute the cash flows of CT Lottery for a period of 30 years to TRS, which will provide direct funding for a portion of the annual required contribution, reduce the aggregate ARC, and improve the funded ratio. This should be completed only to the extent benefits are restructured as set forth below.
- Complete other transactions to monetize underutilized or undervalued state assets and contribute that value to the TRS pensions in exchange for further benefit modifications.
- Redeem or refinance the State's pension obligation bonds on March 15, 2025, which is the earliest date by which all of the bonds then outstanding may be defeased. After defeasing the pension obligation bonds, restructure the TRS amortization schedule by reaching full funding by 2045 instead of 2032, measured using a 6% discount rate, thereby providing additional time and flexibility for the State to meet the ARC on a permanent basis while at the same time following a policy that is expected to reduce the unfunded pension liability every year.

- Prohibit pension holidays (both full and partial) to ensure that the State does not use year-over-year reductions in pension contributions as a tool to close budget gaps. While pension holidays have not recently been an issue for Connecticut, there is no guarantee that future administrations will not use this tactic to underfund the pension systems.
- Set the State's contributions at a level that will reduce the unfunded liability from day one by implementing risk sharing mechanisms discussed below, to prevent pension debt from growing even if returns are lower than expected, and reduce risk of fiscal distress in an economic downturn.
- Develop a plan to manage through an economic downturn as described above and informed by stress testing analysis that is now required by law.

Investment Returns

- Require the Treasurer to publish and set the discount rate used to calculate the TRS unfunded liability, with the Comptroller to certify that the rate is in line with recent historical returns of both Connecticut and other public pensions. For purposes of the analysis set forth herein, we have assumed that the rate would be reduced to 6%.

Restructuring of Benefits

In exchange for the State's contribution of the lottery as set forth above, the Commission recommends that the State implement legislation to restructure unvested pension benefits for existing employees and pension benefits for new employees as follows:

- The addition of a new tier of benefits for newly hired employees, providing them retirement benefits through a well-designed hybrid pension plan that combines smaller, defined benefit pensions with defined contribution plans without social security. The hybrid pension plan would be provided to all new incoming teachers, while the existing teachers would be provided with the option to elect into a new hybrid plan. By combining a smaller, defined benefit plan with a defined contribution component, the hybrid plan would allow the State to improve the predictability of its costs and would reduce the investment risk to the State that is inherent in a defined benefit-only plan.
- Implementation of formal cost-sharing, or risk sharing, provisions that distribute unexpected cost increases resulting from deviations from investment return expectations between the State and the employees. A formal risk-sharing policy would allow the plan to make adjustments to the benefit increases after retirement (such as cost of living adjustments, or "COLAs"⁹) based on the rate of investment return or funding level. In other words, the risk sharing provision would cap the State's contributions to the defined benefit portion of the plan to the amounts that the State would otherwise owe assuming the returns equal the discount rate. In the instance the investment returns are less than the target returns, the benefits would be reduced. Incorporating this type of policy would allow the State to better manage

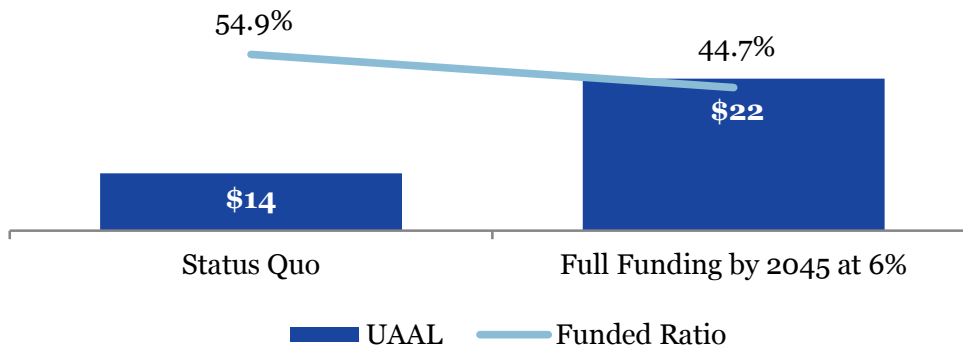
⁹ A COLA is the change in one's monthly retirement benefit to account for increasing prices or inflation.

risk and cost uncertainty to ensure that the pension system is affordable and sustainable.

Impact of Reamortization and 6% Discount Rate Recommendations:

Reducing the discount rate in FY 2019 from 8% to 6% has the effect of increasing TRS’s UAAL from \$14 billion to \$22 billion and reducing its funded ratio from 54.9% to 44.7% in that year.

FY 2019 TRS Pension Liability and Funded Ratio: Status Quo vs. Full Funding by 2045 at 6% (\$ in billions)¹⁰



Reducing the discount rate also has the impact of significantly increasing contributions versus the status quo in order to fill the now larger gap. However, such a scenario is unrealistic and would likely not be adopted by itself, especially with a required full funding date of 2032 – less than 15 years away. As such, the Commission would propose reamortizing the unfunded liability over a longer period of time to mitigate the impact of the discount rate change.

However, under Section 8 of Public Act 07-186, there are certain limitations (“covenants”) that may prohibit the State from diminishing the ARC as long as the pension obligation bonds are outstanding. For this reason, the State could consider defeasing the bonds at the earliest possible date, which is March 15, 2025. At that point, the State could reamortize the unfunded TRS liability without the risk of tripping the applicable bond covenant.

Starting in FY 2026, the Commission would propose reamortizing the remaining unfunded liability over a 20 year period, which is within the time frame recommended by the Conference of Consulting Actuaries, the American Academy of Actuaries and the “Blue Ribbon Panel” commissioned by the Society of Actuaries.¹¹ The reamortization

¹⁰ The Pew Charitable Trusts.

¹¹ Segal Consulting, “Actuarial Funding Policy Guidance: Comparison of Recommendations Reveals Considerable Consensus – and a Few Notable Differences,” October 2014. All three reports agree that 15 to 20 years is the preferred range for UAAL amortization periods.

over an additional 20 years also permits a much more gradual increase in the State's ARC, such that the CAGR through the date of full funding in 2045 is 3% (i.e., budget sustainable). In comparison, under the status quo the CAGR through the date of full funding in 2032 is 5%.

Despite these benefits, the reduction in the discount rate has such a significant impact that total contributions through 2045 are still \$29 billion higher than under the status quo (and \$31 billion higher over the full 30-year projection range).

FY 2020 – 2049 Annual Change in State Contributions to TRS (\$ in millions)¹⁰

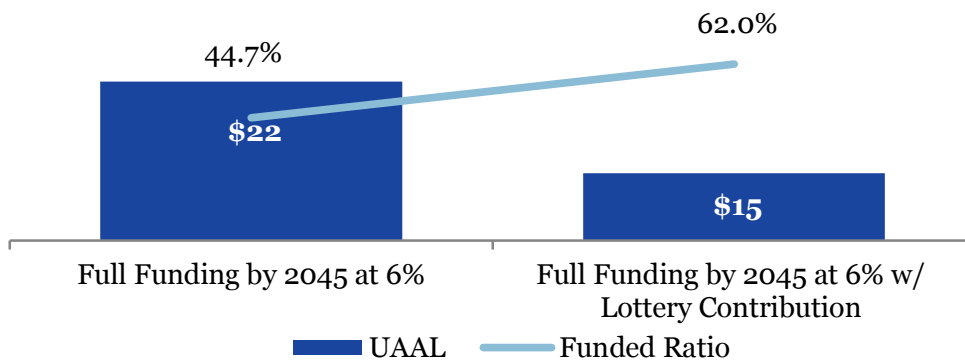
Fiscal Year	Status Quo	Adjustments	
		Restructuring and Reduced Discount Rate	State Contributions to TRS w/out Lottery Contribution
2020	\$1,428	–	\$1,428
2021	1,480	–	1,480
2022	1,532	–	1,532
2023	1,821	–	1,821
2024	1,883	–	1,883
2025	1,945	–	1,945
2026	2,011	(19)	1,992
2027	2,079	(39)	2,040
2028	2,149	(60)	2,089
2029	2,222	(83)	2,139
2030	2,300	(110)	2,190
2031	2,384	(141)	2,243
2032	2,478	(181)	2,297
2033	397	1,955	2,352
2034	346	2,063	2,408
2035	354	2,112	2,466
2036	365	2,160	2,525
2037	377	2,209	2,586
2038	287	2,360	2,648
2039	297	2,415	2,711
2040	306	2,470	2,776
2041	316	2,527	2,843
2042	327	2,585	2,911
2043	337	2,644	2,981
2044	348	2,704	3,053
2045	360	1,072	1,431
2046	371	492	864
2047	383	508	892
2048	396	525	921
2049	409	542	951
Total	\$31,687	\$30,709	\$62,396

It is important to note that the scenario shown herein is illustrative and is not based on actuarial calculations of the contributions. However, the Commission believes that it is possible for the Legislature to provide a set of instructions via statute to the actuary that could achieve the key objectives set forth above while at the same time avoiding any issues under the applicable bond covenants.

Impact of CT Lottery Concession Recommendation:

In connection with the restructuring changes described above, the Commission recommends the State contribute a 30-year stream of CT Lottery net proceeds to TRS at fair market value to defease a portion of the unfunded liability. While any transaction would need to be done on an arms-length basis with appropriate protections for both the State and the pension systems, the transaction would improve the funded status of the pension system dramatically. Relative to the restructured scenario described above and assuming a hypothetical value of the CT Lottery cash flow stream of approximately \$7 billion, the UAAL would be reduced to \$15 billion and the funded ratio would increase to 62% in FY 2019.

FY 2019 TRS Pension Liability and Funded Ratio: Full Funding by 2045 at 6% vs. Full Funding by 2045 at 6% with Lottery Contribution (\$ in billions)¹⁰



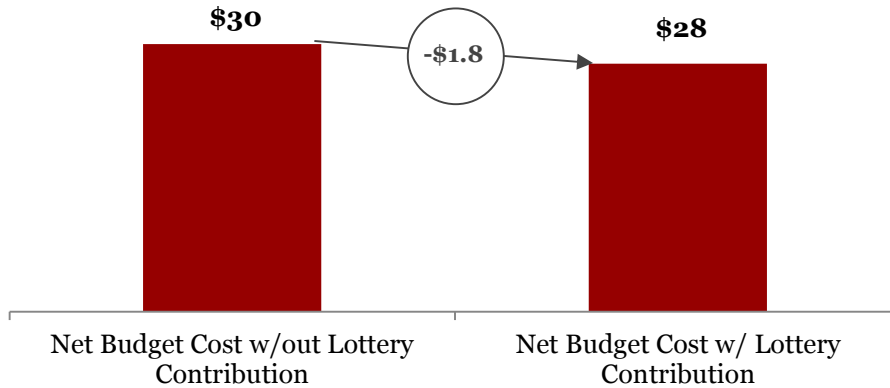
The transaction would be structured as follows:

1. The state would contribute the CT lottery cash flow stream to TRS at fair market value;
2. TRS's funded level would increase by the fair market value of the CT Lottery asset, thereby reducing the net pension liability;
3. As a result of a reduction in TRS's net pension liability, the State's ARC would decrease;
4. In the first half of the 30-year concession, total costs to the State would be reduced in excess of the foregone lottery cash flows due an improvement in TRS's unfunded liability.

To relieve pressure on the State budget in any given year, the reduction in the ARC from the contribution of CT Lottery to TRS must be greater than the amount of revenues contributed in the transaction, as such revenues would have otherwise been received by the General Fund. Preliminary analysis suggests that the transaction would in fact be a net positive to the General Fund over the first 15 years of the concession. On a nominal, or undiscounted, basis the savings to the General Fund over the first 15 years would be \$1.8 billion. On a present value basis, discounted at 6%, the savings would

total \$1.2 billion. These savings would provide the State with the flexibility to focus on budgetary discipline, investing in pro-growth initiatives and expanding the economy.

FY 2020 – 2034 TRS Net Budget Cost Reduction (\$ in billions, nominal)¹⁰



As shown below, of the \$1.8 billion of nominal savings, \$233 million are generated in sample fiscal year 2025.

Single Year Impact on General Fund Budget (\$ millions)¹⁰

Sample Year FY 2025

Transferred Lottery Net Proceeds	(\$427)
Reduction in ARC Expense from Lottery Net Proceeds	427
Additional Reduction in ARC due to Improved Asset Position	233
Net Benefit	\$233

A net benefit such as the one generated in 2025 would occur for the first 15 years of the concession. After 2034, the transaction becomes dilutive to the budget for the remainder of the 30-year period. On a present value basis, however, the impact is substantially mitigated by the fact that this dilution occurs far into the future. Over the entire 30-year period of the lottery contribution, the increase in net budget costs is \$4.3 billion, but on a present value basis (discounted at 6%) this figure is only \$196 million.

FY 2020 – 2049 Annual Change in State Contributions to TRS (\$ in millions)¹⁰

Fiscal Year	State Contributions to TRS w/out Lottery Contribution	Adjustments		State Contributions to TRS w/ Lottery Contribution	Present Value of Increase / (Further Reduction) in ARC
		CT Lottery Net Proceeds	Increase / (Further Reduction) in ARC		
2020	\$1,428	(\$371)	(\$7)	\$1,049	(\$7)
2021	1,480	(383)	(6)	1,091	(5)
2022	1,532	(396)	(2)	1,135	(1)
2023	1,821	(406)	(232)	1,182	(184)
2024	1,883	(416)	(233)	1,233	(174)
2025	1,945	(427)	(233)	1,285	(165)
2026	1,992	(437)	(215)	1,340	(143)
2027	2,040	(448)	(195)	1,396	(123)
2028	2,089	(458)	(174)	1,456	(103)
2029	2,139	(469)	(152)	1,518	(85)
2030	2,190	(482)	(127)	1,581	(67)
2031	2,243	(495)	(102)	1,646	(50)
2032	2,297	(509)	(74)	1,714	(35)
2033	2,352	(523)	(45)	1,784	(20)
2034	2,408	(537)	(13)	1,857	(6)
2035	2,466	(552)	20	1,934	8
2036	2,525	(567)	55	2,013	20
2037	2,586	(582)	93	2,096	32
2038	2,648	(597)	132	2,183	44
2039	2,711	(612)	174	2,274	54
2040	2,776	(624)	219	2,371	64
2041	2,843	(637)	266	2,472	74
2042	2,911	(650)	316	2,578	83
2043	2,981	(663)	369	2,687	91
2044	3,053	(676)	425	2,801	99
2045	1,431	(689)	1,103	1,845	242
2046	864	(703)	703	864	146
2047	892	(717)	717	892	140
2048	921	(731)	731	921	135
2049	951	(746)	746	951	130
Total	\$62,396	(\$16,505)	\$4,259	\$50,150	\$196

Despite out-year increases in the ARC, the lottery transfer makes sense for a number of reasons. First, the lottery net proceeds provide a dedicated funding source for TRS, which is severely underfunded and currently poses a significant risk to the State’s credit rating and ability to raise low-cost debt.

Second, the contribution replaces a portion of the current stream of cash flows coming from the State, which is subject to annual appropriation, with a guaranteed stream of cash flows from CT Lottery. This locks up those cash flows, ensuring that TRS can invest them alongside other plan assets and generate compounding interest. Over the course of the 30-year contribution, assuming a 6% investment return assumption, the interest earned on the lottery income would total \$12.4 billion on a nominal basis or \$3.6 billion on a present value basis.¹²

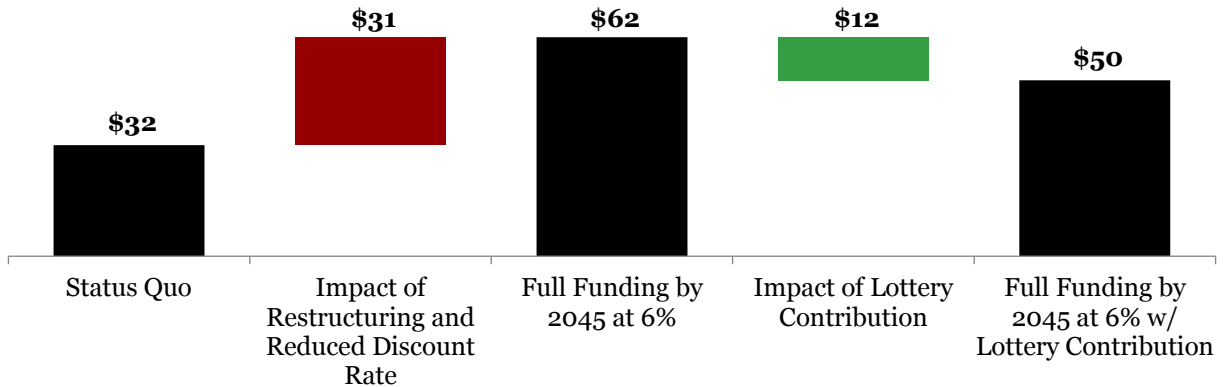
Third, the transaction is accretive to the General Fund budget for the first 15 years of the transaction. The savings in pension contributions during this time could allow the State to fund critical investments in transportation and economic growth that could more

¹² Interest is calculated using the mid-year convention.

than offset the increase in costs for the General Fund in the outer years of the concession.

Finally, from the perspective of TRS, the lottery contribution significantly offsets an otherwise 97% increase in required contributions due from the State as a result of the recommended restructuring. The following chart illustrates the cumulative impact of all recommended changes on the required contributions due from the State over a 30-year projection horizon.

FY 2020 – 2049 Cumulative Change in Required Contributions Due from the State: Status Quo vs. Full Funding by 2045 at 6% vs. Full Funding by 2045 at 6% with Lottery Contribution (\$ in billions)¹⁰



APPENDIX 3

SPENDING MANAGEMENT AND REVENUE OPTIMIZATION

The Commission has outlined a series of bold investments designed to improve the state's competitiveness and grow key sectors over the next several years. However, reliance on long-term growth – and subsequent inflows of future tax revenues – is unlikely to provide the structural and budgetary balance the state will need to support the delivery of critical services and improve its bond ratings over the short- and medium horizons. Simply put, to meet its goal of achieving a balanced biennial budget in FY20, the state must usher in an equally bold fiscal plan to right-size its operations and increase revenues without tax increases beginning this fiscal year.

Connecticut is not the first state to experience a need for such a plan. The Commonwealth of Pennsylvania recently embarked on a fiscal exercise to identify a portfolio of opportunities that are expected to ramp to a \$2B annual reduction in its fiscal deficit across four principal levers: service modernization, reducing operating expenses, increasing revenue without increasing tax rates, and re-aligning program support levels.¹ Massachusetts similarly developed a plan to improve fiscal sustainability by reforming core drivers of expenses (e.g., optimizing capital investments and real estate revenues, right-sizing the workforce through voluntary means, reengineering business processes, and bringing down state Medicaid costs through a refinement of its Accountable Care Organization strategy, program design, and payment models. More recently, Puerto Rico has embarked on an ambitious, Congressionally-mandated exercise to identify nearly 30% annual operating expenditure reductions without jeopardizing its most critical services or recovery post-Hurricanes Irma and Maria.²

Seeking a 3% reduction in overall operating expenditures over the next biennial budget cycle would allow Connecticut to close its fiscal gap by approximately \$1Bn annually.³ Additionally, a combination of compliance-related revenue initiatives and right-sizing licenses, fines, and fees could provide an additional \$100-200MM (or roughly 1% of General Fund revenues) annually – above and beyond any revenue uplift induced from economic growth.

Identifying these savings and revenue optimization opportunities in detail was not something the Commission could accomplish in its brief lifespan. We recommend that the Governor immediately embark on an effort to hire one or more skilled consulting firms to undertake this work and report specific plans within four to six months.

¹ Achieving a Sustainable Budget for the Commonwealth of Pennsylvania (Jan 2017): <http://www.budget.pa.gov/Documents/Commonwealth%20of%20Pennsylvania%20potential%20budget%20initiatives.McKinsey.pdf>

² New Fiscal Plan For Puerto Rico. Government of Puerto Rico (Jan 2018): <http://www.aafaf.pr.gov/assets/newfiscalplanforpr-01-24-18.pdf>

³ For FY17, total expenditures estimated at \$32Bn, excluding ~6.35Bn in restricted and Federal spend, based on data from Connecticut Office of the State Controller (<http://openbudget.ct.gov>)

Some potential areas where Connecticut could find specific sources of savings and revenue enhancement include the following:

Revenue Enhancement

- *Tax Compliance*: Incremental to the revenue expected to be generated through economic growth and broad-based tax reforms discussed in other Commission recommendations, the State has an opportunity to increase revenues through improved compliance and collections, particularly the use of advanced analytics and expanded audit capacity. The Department of Revenue Services estimates only 58% of owed sales and use taxes (SUT) were collected in 2016, much of this gap coming from underreporting.⁴ Targeting just a 2% uplift in SUT based on FY17 collections, likely through a focus on small and medium enterprises, would yield ~\$150MM in additional revenue to close the State’s fiscal gap. The State also has a near-term opportunity to improve collections on past-due arrears. Previous Department of Revenue Services amnesty programs have allowed the state to collect ~\$414 million revenue over five discreet efforts beginning in 1990.⁵
- *Licenses, fines and fees*: The state might also explore additional opportunities to increase short-term revenues by bringing licenses, fines and fees to market rates. Connecticut receives just 13% of its annual revenues from licenses, fines and compared to a US average of 17%.⁶ As just one example of this opportunity, the State charges \$15 for Department of Corrections background checks compared to a US average of \$25. Other opportunities range from J-1 visa fees, park fees and past-due police fines.
- *Auxiliary revenues from asset optimization*: Finally, the State might explore optimization of existing assets – beyond lottery privatization considered elsewhere in this report – to generate cash flow and fund near term liabilities. Real estate optimization alone has been used to generate upwards of \$500MM in recurring revenue in peer states, with even higher one-time revenue increases available through sale-leaseback arrangements and property sales. Another opportunity would be to legislatively allow either the State or municipalities to monetize “rights of way” along Connecticut’s ~3,700 road miles and over ~235 railroad track miles for uses like fiber optics— elsewhere in this report, which is a new proposed authority for municipalities but could also be extended to the state where the rights of way are state-owned. Over a 30-year concession, Massachusetts expects to generate \$230MM in exchange for the right to install and maintain conduits to run fiber optic cables.

Expenditure Reduction

- *Higher Education (~\$100MM annual savings of ~\$10Bn base)*: The Board of Regents of the state university system has already taken important steps to

⁴ Connecticut Post, State tax collectors to come knocking (April 2017): <https://www.ctpost.com/local/article/State-tax-collectors-to-come-knocking-11041216.php>

⁵ Connecticut Department of Revenue Services; Connecticut Mirror, Owe past taxes? CT waives big penalties for delinquents (Sept 2013).

⁶ Ernst & Young Total State and Local Business Taxes FY 2016: <https://go.ey.com/2gC0y1p>

consolidate and reduce operating costs of its higher education network. The Commission recommends further consideration of savings opportunities across the University of Connecticut and related UConn Health to reduce both instructional and non-instructional operating budgets (roughly \$1.4Bn annually) through a combination of efficiencies that can also improve the quality of outcomes delivered. Such an expense savings undertaking is not inconsistent with a separate Commission recommendation that the legislature create a special commission to determine what it would take to transform UConn into a top 10-15 US public research university by 2025.

- Health and human services, including privatization (~\$250MM annual savings off ~\$10Bn base): Opportunity exists for Connecticut to further its role a leader among states in “bending the curve” on state-sponsored healthcare programs through value-based reforms and benefit design. Connecticut should expand its thinking around shifting to value-based payment models (e.g., encouraging formulary savings, shifting to lower-cost care settings) in its management of state employee and retiree health services and for Medicaid. Particular opportunities exist in achieving savings by shifting the delivery of certain social services programs to lower cost non-profit providers. An immediate focus for examination should be the sale or privatizing (to a joint venture or otherwise) of John Dempsey Hospital. The Commission understands that these privatization steps may not produce large savings until the job protection provisions of the current SEBAC agreement expire in 2021, but they should be aggressively pursued nonetheless and the proposed consultant should identify and quantify the potential savings.
- Other central government and discretionary spend (\$150MM in annual savings off ~\$10Bn base): This reform bucket would include both key operating agencies like the Department of Administrative Services as well as functional agencies like the Departments of Corrections and Labor. The key to decreasing spend will be aligning public and private stakeholders on a few, targeted opportunities to truly drive operational change in the way agencies deliver services. As part of this effort, the Commission specifically recommends Connecticut’s fiscal plan explore opportunities to eliminate or externalize “non-core” programs (e.g., through privatization or public-private partnerships); consolidate agencies to reduce payroll and footprint; leverage shared services; and, improve agency-wide procurement practices to lower operating expenditures. For functional agencies, specific demand reduction strategies (e.g., anti-recidivism reforms in Corrections or digitizing workers compensation processes) offer a path for both reduced operational expenditure as well as improved service outcomes for the State.
- Transportation (\$300-500MM annual savings off ~\$2.5Bn base): There are two major paths Connecticut can explore to reduce its transportation related expenditures: (1) increase capital productivity for major infrastructure investments through improved planning (10-15% in cost efficiencies off ~\$800MM base); and, (2) execute on operation and maintenance efficiencies of existing assets (up to 20-30% in cost efficiencies off ~\$1.5Bn base).

Several steps will allow the state the best opportunity to both identify and capture these savings and revenue enhancement opportunities:

- 1. Level set on economic conditions and set the stage for solutions.**
- 2. Define fiscal measures and prioritize initiatives.**
- 3. Ensure implementation.**

In the short-term, Connecticut leadership can request that the rapid diagnostic of the current situation (Step 1 above) can be done this year, so that solution identification and planning can be pursued with energy in 2019, with early results and impacted captured by the end of 2019.

APPENDIX 4

ECONOMIC GROWTH

The reforms outlined above are meant to support long-term competitiveness and growth. While fixing the fiscal situation, revitalizing our cities, and modernizing infrastructure are critical, Connecticut also needs to invest in initiatives specifically targeted at driving near-term economic and employment growth.

This section describes a portfolio of these near-term growth initiatives.

Some initiatives are sector agnostic, designed to broadly attract talent and support small and medium-sized businesses (SMBs), and some are sector-specific. These ideas are meant to be complementary to each other and depend on the long-term effort to address the State's challenges.

For example, unless Connecticut strengthens its cities and improves its infrastructure, initiatives to retain local STEM talent (described below) will never reach near their potential.

Research and interviews with the business community identified three priorities for driving growth in the short term:

1. Develop and retain the workforce Connecticut needs. Connecticut must maintain a highly productive workforce to compete. While we have a great talent base today, we are losing more talented and skilled workers than we are gaining, and we are not producing, and retaining, enough workers with the right skills for the future. To regain its competitiveness and deliver the talent our companies need to grow, Connecticut must:

- Increase the quality and quantity of STEM talent in Connecticut
- Transform the national profile of Connecticut's universities, and
- Retain and attract critical talent.

2. Support the growth of Connecticut's highest-potential sectors. Targeted investments in priority sectors will be critical complements to cross-cutting programs and initiatives. Impacts that are visible, measurable, and early will be important to build momentum (and help pay for reforms). Focusing on two or three sectors that have the most promise for growth and/or are the most important to Connecticut's economy in the short to mid-term are the best way to deliver this early momentum. To do this we could:

- Modernize Connecticut's manufacturing supply chain
- Become a globally recognized InsurTech hub
- Become a national leader in innovative care delivery, and
- Deliver on Connecticut's potential as a biotech R&D hub.

3. Transform the business environment for entrepreneurship and innovation. Small business and innovation are sources of renewal in any economy and are

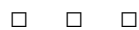
required to keep companies and attract and retain talent. We have lost our edge and become too dependent on large and old firms. To get back on track, we could:

- Become a top state for small businesses in the Northeast, and
- Promote local investment in innovation.

These initiatives do not need to be created from scratch as Connecticut has many strong programs and institutions to build on. Success will require a combination of focus and partnerships. We need to reinforce what’s working well, boldly launch select new efforts, and stop programs that are not delivering results. We can achieve this only through partnerships between the public and private sectors.

In this section, we laid out the additional support needed from the Executive Branch and Legislature, while also calling the private sector to act. Real leadership is needed.

We hope the private sector’s participation in this Commission is just the beginning.



1. DEVELOP AND RETAIN THE WORKFORCE CONNECTICUT NEEDS

A talented population has set Connecticut apart in the past, and must continue to be a core part of the State’s competitive story going forward. Connecticut cannot compete on cost. We will have to attract investment and growth with a highly productive and globally competitive workforce.

Our population is getting older, and we have seen a sustained outmigration.¹ As a result, our workforce is likely to shrink over the next decade – we may have 157,000² fewer working age adults by 2026 than we have today. To complicate matters, Connecticut is below average in both new college graduates per capita and share of graduates in STEM fields.³

Despite these challenging trends, we still have great talent: our workforce is more educated⁴ and productive⁵ than most. We also have a strong base of educational institutions to help improve our talent pipeline, respond to future demand, and build a talent market that can help convince companies to come and grow in Connecticut.

Reclaiming Connecticut’s reputation as a talent leader will require a transformation of our STEM pipeline. Local employers and sectors are undergoing profound

¹ American Community Survey

² Moody’s Analytics

³ National Center for Education Statistics, CT ranks 28th in both share of STEM graduates with two or four year degrees and graduates per capita

⁴ American Community Survey

⁵ Bureau of Labor Statistics, Bureau of Economic Analysis

transformations as they transition to Industry 4.0 and embrace digitization⁶ – changes that will require them to develop and attract a new set of skills. Many employers now wonder whether they will be able to find or attract those skills in Connecticut, and some are looking elsewhere to meet this demand, from Silicon Valley to New York City.

The State must not only address the quality and quantity of future graduates but also keep more talent in the State after graduation. It must also gain a clearer understanding of the specific skills employers will require in the years ahead and the ability of educators to meet that demand. Success will require cooperation across the ecosystem – between the employers, the educators, and the State agencies.

To help ensure that talent remains a competitive differentiator for Connecticut's growth, three sub-initiatives should be considered:

- **1a. Increase the quality and quantity of STEM talent in Connecticut:** Build a sufficient supply of STEM and manufacturing talent to support the growth of local companies by enabling evidence-based decision-making on workforce investments, improving public-private cooperation and partnerships, and piloting funding and operating model innovations to improve outcomes.
- **1b. Transform the national profile of Connecticut's universities:** Improve the national reputation (and impact) of our universities by delivering on bold transformations to boost external funding and the quality of our graduates.
- **1c. Retain and attract critical talent:** Convince more talent to move to or stay in Connecticut through financial incentives (e.g., grants, tax credits, loan forgiveness) and innovative branding campaigns.

1a. Increase the quality and quantity of STEM talent in Connecticut

Connecticut has a healthy demand for STEM and manufacturing talent today, and this is expected to grow over time – mostly driven by increased demand from the State's largest employers. It is critical that Connecticut bring together its employers and educators to capture this jobs potential, and in the process become an example of what a responsive, data-driven, and future-ready workforce ecosystem looks like.

Unfortunately, our employers currently struggle to fill positions in STEM occupations. The three occupation groups with the greatest unmet demand today are all STEM fields: healthcare professionals, computer and mathematical occupations, and engineers.⁷ Nationally, 45% of STEM demand falls within computer science occupations.⁸ Within Connecticut, additional demand must be met from the manufacturing sector. For example, Electric Boat and Pratt & Whitney have publicly

⁶ Industry 4.0 has been defined as the next phase in the digitization of the manufacturing sector, driven by four disruptions: the astonishing rise in data volumes, computational power, and connectivity; the emergence of analytics and business-intelligence capabilities; new forms of human-machine interaction; and improvements in transferring digital instructions to the physical world

⁷ Supply and demand gaps for major occupations was calculated based on analysis of unemployment by occupation and open job postings within Connecticut from the BLS and EMSI

⁸ Bureau of Labor Statistics

announced plans to hire more than 20,000 new workers over the coming decade.⁹ This will include both engineers with advanced degrees and skilled tradesmen with certifications and associates degrees. Employers are worried about the ability of the system to meet their talent needs.

Connecticut ranks only 28th nationally in the share of total graduates in STEM fields, and our overall post-secondary enrollments have been flat since 2010.¹⁰ While UConn and others in the State have made moves to improve their STEM pipelines (e.g., enrollment in UConn school of Engineering has increased by 70% since 2013, and community colleges have more than doubled the output of manufacturing grads in the past five years¹¹), we have made insufficient progress. Local employers are already looking to other states for top STEM talent.

To meet the growing STEM demand from employers, Connecticut should consider two actions:

- **Build a skills network that enables more efficient, outcomes-based decisions:** Support smarter and better coordinated workforce development investments, by increasing the quantity and quality of data, as well as providing actionable information on skills needs to educators, employers, and job seekers.
- **Develop dynamic curricula and learning pathways for priority sectors:** Support a portfolio of new 4-year, 2-year, and certificate programs that are co-designed with employers and deployed by public and private institutions with the necessary teaching capabilities.

Build a skills network that enables more efficient, outcomes-based decisions

Connecticut could create a platform that allows the labor market to function based on the skills individuals have built, helping employers and educators act efficiently in the cultivation of talent. It would offer many advantages:

- Employers could see in real time where to find the skills they need today or over the next one to three years
- Educators could see aggregate employer queries and be able to reach out and connect their students or design a curriculum for the skills those employers will be seeking in 2020.
- Students could use guided platforms to enter their interests, experiences and skills to get accurate assessments of what jobs are a best fit for them, and a “gap analysis” to help them understand what they would need to do to pursue career paths, the training options that would fill those gaps, and the available relevant financial and other support services.

⁹ “Electric Boat ‘Hiring Frenzy’ Gives Economic Boost to Southeastern Connecticut”, *Hartford Courant*, July 16, 2017; “Pratt & Whitney Will Fill 8,000 Jobs in Next Decade”, *Hartford Courant*, September 16, 2016

¹⁰ National Center for Education Statistics

¹¹ DECD’s Fiscal Stability Commission Presentation, January 8th, 2018

- Policymakers could use these interconnected datasets to make better funding decisions – as there would be greater transparency on which programs are working and for which programs there is greater (and less) demand.

Much of the data is already available in silos across the public and private sector. The challenge is how to integrate these data sets and create a system that is adopted widely, as much of the value in such a platform is in the volume of usage and the quality of the network of employers and individuals. This inherently points to an at-scale partnership with an existing tech platform (e.g., Indeed, Monster). Connecticut could be the first state to successfully tackle this challenge, creating a skills-based labor market that allows all stakeholders to make the best decisions available based on a true understanding of the State’s needs.

Develop dynamic curricula and learning pathways for priority sectors

Press releases, surveys, and interviews highlight that Connecticut employers are concerned that the State will not be able to deliver the workforce with the necessary volumes and technical skills that they anticipate requiring in the future. A recent survey of Connecticut manufacturers found that 71% of respondents felt new hires were lacking in technical skills.¹² Pratt & Whitney, for example, announced that it expects to have more than 8,000 new job openings in Connecticut in the coming years, though the company’s president stated, “the thing that keeps us up at night is ‘are we going to have enough people, and are they going to have the right skill sets.’”¹³

New levels of cooperation and new programs will be required to meet this demand. Too many of the programs are one-off – for example, between a single employer and a local community college or even a single professor – and sub-scale. United Technologies, for example, developed a custom program with Asnuntuck to upskill 50 logistics employees into machinists.¹⁴ Many of the programs are also sub-scale, and there is not enough data or information-sharing about the best practices of programs. It will be important to increase coordination and sharing across the system – while always working back from employer needs. The result of this would be a new portfolio of four-year, two-year, and certificate programs that have been designed collaboratively with the private sector in response to their bespoke skill needs in Connecticut.

To help create this new, better-performing system, specific activities should be considered:

- *Create sector-specific forums* for employer HR leads, operations and manufacturing managers, and community colleges to share data on current quality and future needs, with a dual focus on training for new hires and upskilling of experienced talent as manufacturing transitions to Industry 4.0.

¹² CBIA 2017 Survey of Connecticut Manufacturing Workforce Needs

¹³ “Pratt & Whitney Will Fill 8,000 Jobs in Next Decade”, *Hartford Courant*, September 16, 2016

¹⁴ United Technologies

- *Secure commitments from employers* to increase internship program seats, consider adopting co-op models, and consider other programs for providing students with earlier meaningful exposure to high-demand career paths.
- *Double down on employer-trainer relationships*, and learn from the high-performing ones.
- *Build agreements among Connecticut's colleges and universities* to balance loads in bottlenecked degrees, such as entry-level engineering courses where capacity is most constrained.
- *Create an employer-run marketing campaign* to raise awareness about STEM paths for high school, community colleges, and college students, with regular visits taking students to visit employer facilities.

The Greater Metro-Denver Healthcare Partnership is an interesting example of how an industry helps bring employers, educators, and external training programs together. The collaborative effort to meet the healthcare industry's recruitment, retention, and training needs brings together more than 50 hospitals, the Colorado Community College System, the Colorado K-12 programs, and several four-year colleges and universities. It boasts a more than 90% student placement rate, with an average salary increase of \$11.50 per hour post-completion.

In parallel, Connecticut should also encourage an innovative and outcomes-oriented educational culture. There likely exist creative opportunities to partner with philanthropy to test and deploy new learning innovations, and foster a community of learning and sharing between aligned partners. There are pockets of experimentation and impact across the country that can be brought to Connecticut, and we can also become the living-lab were the next wave of innovation occurs.

1b. Transform the national profile of Connecticut's universities

Connecticut is home to many great education institutions, though the overall quality and national brand of its higher education system could be significantly improved by delivering on a few bold initiatives. By investing in its existing strengths, Connecticut has an opportunity to create a national higher education brand synonymous with excellence and innovation.

Yale is a global brand, and UConn has made steady improvements in its national rankings. However, Connecticut has just two top 100 national universities according to US News, whereas New York and Massachusetts have 13 and ten respectively.

To improve the national profile and relative quality of Connecticut's universities, three actions should be considered:

- *Build a new, nationally competitive STEM campus*: Create a nationally known STEM program producing in-demand students which Connecticut employers are currently looking elsewhere for.
- *Over-deliver on the potential of the Students First initiative*: Leverage Connecticut's bold move to integrate its 12 community colleges into an efficient and agile platform for engaging employers, sharing best practices, and responding to new opportunities.

- *Solidify UConn as a top 12-15 public university.* Support a bold performance transformation at UConn to increase its external funding, improve its faculty and student outcomes, and capture operational efficiencies.

Build a new, nationally competitive STEM campus

The State has recognized the need to expand STEM talent in a world being defined by greater automation, digitization, and technical requirements – see for example the critically important “Next Generation Connecticut” initiative funding a \$2-billion investment in new faculty and facilities. But Connecticut still only has two graduate engineering programs in the top 100 nationally: Yale at 38th and UConn at 65th.¹⁵

Thankfully, the State is already supporting STEM improvements at UConn, and Yale has identified applied and data sciences as a priority area for future investment. Both of these important initiatives should continue to be supported; but attracting a new, leading program to the State would have an immediate halo effect on the system overall, and soon translate to measurable outcome improvements. Placing such a program in one of Connecticut’s main cities (e.g., Stamford, New Haven or Hartford) could be especially impactful, given that it would improve the attractiveness of a critical urban area to young talent and employers. For example, Connecticut could partner with philanthropy to run a contest to attract a new graduate program (e.g., to the UBS building in Stamford) focused on the data and digital skills most in demand by local finance, manufacturing, media, and consumer companies. The contest could target either domestic schools outside of the region (e.g., Stanford, Rice) or top foreign universities (e.g., from Singapore, China, Korea, India, or Germany).

This kind of bold approach has succeeded elsewhere. For example, the Applied Sciences NYC initiative identified a need for more talent production within the city, and held a competition for a graduate program in applied sciences. The city attracted seven competitive bids from highly regarded institutions¹⁶, eventually selecting a combined proposal from Cornell and Technion as the winner. The prize consisted of \$400 million in combined land value and infrastructure grants from the city, and it spurred a \$2 billion investment in Roosevelt Island. The campus is now open, aiming to produce 500 graduates per year.

Over-deliver on the potential of the Students First initiative

Connecticut’s 12 community colleges are applying to become a single accredited institution – a bold and important initiative. This move aims to streamline administrative systems and save Connecticut at least \$28 million annually.¹⁷ Once the merger is approved and completed, there is the potential to increase the aspiration for what the longer-term vision for the new entity could be, for example:

¹⁵ US News

¹⁶ The seven bids came from: Cornell University/Technion; Stanford University/CUNY; Carnegie Mellon University/Steiner; Amity University; Columbia University; New York University/University of Toronto/University of Warwick/Indian Institute of Technology/Carnegie Mellon; New York Gerome Center/Mount Sinai School of Medicine/Rockefeller University/SUNY Stony Brook

¹⁷ Connecticut State Colleges and Universities “Students First” website

- *Capture and disseminate best practices* more effectively across schools, quickly raising the achievement of underperforming programs. For example, following the consolidation of its two-year and four-year schools, Georgia was able to improve two-year graduation rates an average of 7.4 percentage points without increasing expenditure per student.¹⁸
- *Dramatically improve the quality of employer relations and interactions*, by simplifying and professionalizing employer management.
- *Increase student flexibility and mobility* by allowing more seamless movement of credits and coursework between schools.
- *Launch a campaign to re-enroll previous enrollees who dropped out within striking distance of graduation*. Deploy advanced analytics to help identify the highest-potential students to proactively reach out to. These could be enticed back with tuition deferral plans, for example. Their coursework could also be specifically designed to meet the short-term needs of local employers.

Solidify UConn as a top 12-15 US public university

UConn’s ranking among all US universities has risen from 69 to 56 since 2011, according to US News. This year, the university broke into the top 20 public universities in the US.¹⁹ Having a great public research university is frequently core to a great economic development strategy, and UConn can be that for Connecticut. Setting a bold aspiration for growth in outcomes and stature – for example, becoming a top 12-15 public university by 2025 – could catalyze economic development across the State.

A move into the top 12 public universities is uncommon but not unprecedented. In 2011, University of Florida was able to move from #58 nationally and #20 among publics in 2012 to #42 nationally and #9 among publics by 2018. They made a concerted effort to improve the school’s standing, and in 2018 broke into the top 10 public universities for the first time. Elements of their strategy included investing in a wide breadth of research capabilities, adding more than 100 senior faculty, and improving key performance measures, including graduation rate, academic reputation and selectivity. Florida has since doubled down on the effort with the “Go Greater” program aiming to raise \$3 billion to continue investing in faculty, scholarships and multidisciplinary research.²⁰

1c. Retain (and attract) critical talent to stay in Connecticut

Connecticut has a talented workforce and produces a pipeline of talented graduates, but too much of that talent is leaving the State. The State can implement a series of financial incentives and creative campaigns to reverse that flow and win broad recognition as a great place to start a career and a family.

¹⁸ “Merging Colleges to Cut Costs and Still Boost Graduation Rates,” *The Pew Charitable Trusts*, March 29, 2017

¹⁹ US News

²⁰ University of Florida

Connecticut has the fifth most educated population in the US; more than 38% of residents 25 and over held at least a bachelor's degree in 2016.²¹ This position is eroding, however. Today, most of the talent Connecticut produces leaves the State. The average Connecticut out-migrant is also more educated and younger than those who come to the State: the education levels with the greatest outmigration were those with some college or associates degrees (about 6,000 residents) and bachelor's degrees, (about 4,000), while the age bracket with the greatest outmigration was 18-24 (about 8,000 residents).²² Last year, the average family that left the State had a gross annual income of \$123,000 vs. \$93,000 for new residents who moved in.²³ This talent arbitrage hurts the State's competitiveness, and our tax base.

To improve Connecticut's ability to retain and attract talent, two actions should be considered:

- *Offer targeted incentives to retain critical STEM graduates*: Convince priority recent graduates that Connecticut is an attractive place to start and grow their careers, testing and deploying a new portfolio of cash incentives, tax credits, or debt forgiveness.
- *Experiment with creative outbound talent attraction strategies*: Attract talent to move to Connecticut for its job prospects and quality of life, by targeting specific demographics with outreach programs and incentive pilots.

Offer targeted incentives to retain critical STEM graduates

Connecticut retains only 32% of students who graduate from its higher education institutions throughout their careers, while neighboring states such as New York and Massachusetts retain 54% and 46% of graduates respectively.²⁴ By bringing graduate retention closer to the levels of neighboring states, Connecticut's talent pipeline will be dramatically more attractive and effective for employers.

While different incentives should be explored and tested, the most direct model would be to provide financial incentives targeted at specific talent bands, such as computer science graduates. There are many different ways to structure an incentive, for example: loan forgiveness, tax credits, mortgage subsidies. For example, the pay gap for STEM roles between Connecticut and Massachusetts is just shy of \$3,000. If the State can offer an incentive greater than \$3,000 per year for the first two to five years of employment, we might become more competitive with neighboring states.²⁵

Rhode Island has an example of such a program, with their "Wavemaker" fellowship aimed at retaining STEM graduates through an income tax credit that varies by level

²¹ American Community Survey

²² American Community Survey

²³ IRS SOI Tax Stats

²⁴ Economic Modelling Specialists International (EMSI), Career Builder analysis of professional profiles

²⁵ Bureau of Labor Statistics analysis of STEM occupations

of education. Since 2015, Rhode Island has awarded 427 fellowships at a cost of \$3.3 million that have had an estimated impact of \$13.2 million in spending created or saved for the local economy.²⁶

It is encouraging that Connecticut recently established an income tax credit up to \$500 per year for recent STEM graduates over their first five years in the workforce – but this package will likely need to be enhanced. Fortunately, there would be plenty of opportunities to pilot and test different packages to identify the optimal combination before rolling any new programs out at scale.

Experiment with a creative outbound talent attraction strategy

Connecticut is still a great place to live, though for several reasons it has not done well recently with younger highly educated people. Many people outside the State may not realize what we have to offer.

The State could launch a creative initiative to identify specific populations likely looking for what Connecticut has to offer, and then experiment with tactics to reach and win them over. For example, focus groups and consumer research could identify the priority segments where Connecticut's value proposition would resonate the most, such as middle-income households with at least two children where at least one of the parents went to high school and/or college in the State. A database of potential new residents could then be developed using existing data, and a series of different win tactics could be tested. Examples of such tactics could range from the very affordable, (e.g., a Google AdWords campaign on job search sites), to monetary incentives, (e.g., two nights at a Connecticut hotel to encourage visits), or to pay-for-result payouts, (e.g., \$5,000 in tax credits for first two years if they move back to the State and are employed in a STEM field).

Similar incentive programs are being used today in select areas of Connecticut. For example, New Haven has an initiative incentivizing home ownership through the Re:New Haven program. It offers up to \$80,000 in incentives for new home owners, with funds going towards down payment assistance, remodeling, and college tuition for children.

2. SUPPORT THE GROWTH OF CONNECTICUT'S HIGHEST-POTENTIAL SECTORS

Advanced manufacturing, financial services, and healthcare stand out as Connecticut's highest-potential sectors for accelerating short-term growth. These are three of the five largest sectors in the State by GDP (finance is #2, manufacturing is #3, healthcare is #5), and each offers above-median wages in the State. Healthcare has the largest employment of all sectors. These are of course not the only sectors that matter – growth is needed across the economy – but the data and interviews suggest that they offer the highest potential impact from targeted efforts based on their growth potential, size, and underlying assets. The proposed sub-initiatives

²⁶ A Conversation with Jillian Butler: The Wavemaker Fellowship, *American Innovation*, January 17, 2018

related to these sectors can drive meaningful economic growth, add quality jobs, help attract talent to the State, and improve the vitality of our cities.

Specific sub-initiatives that should be considered include:

- **2a. Modernize Connecticut’s manufacturing supply chain:** Upgrade the manufacturing supply chain’s technology and expertise by building a network of “factories of the future” and increasing access to funding.
- **2b. Become a globally recognized InsurTech hub:** Leverage Connecticut’s strength as an insurance capital, proximity to financial hubs, and the projected growth in InsurTech to become an internationally recognized hub for digital insurance innovation.
- **2c. Become a national leader in innovative care delivery:** Build on Connecticut’s Healthcare Innovation Plan and local assets to become a national example for new delivery innovations, improved outcomes, and a skilled healthcare workforce.
- **2d. Deliver on Connecticut’s potential as a biotech R&D hub:** Refine and focus Connecticut’s biotech strategy, emphasizing better ecosystem engagement and more targeted support to help see the State’s potential and momentum turn into greater impact and jobs.

2a. Modernize Connecticut’s manufacturing supply chain

Connecticut’s manufacturing ecosystem is anchored by large, industry-leading companies who plan to grow over the next decade.²⁷ To capitalize on this growth potential, the State can rapidly upgrade its manufacturing supply base through a network of “factories of the future” and increase access to funding for suppliers.

Connecticut’s manufacturing sector is the third-largest measured by state sector GDP and fourth-largest measured by jobs.²⁸ The local ecosystem is anchored by globally competitive manufacturers, including United Technologies, Stanley Black & Decker, and Electric Boat, as well as a deep supply chain of more than 4,500 in-state suppliers. Many public and private initiatives are dedicated to growing the sector; for example, UConn has invested more than \$180 million in an advanced manufacturing ecosystem at its Tech Park, with an additional roughly \$75 million in commitments from private partners.²⁹ Connecticut’s large manufacturers are global leaders in the adoption of modern manufacturing technologies; for example, Pratt & Whitney’s state-of-the-art horizontal assembly line.³⁰ They also aim to hire more than 20,000 employees over the next decade to meet their large forecasted customer demand.³¹

²⁷ “The Future of Defense Workforce in Connecticut”, Connecticut Institute for the 21st Century

²⁸ Moody’s Analytics, US Bureau of Labor Statistics

²⁹ DECD’s Fiscal Stability Commission Presentation, January 8th 2018; UConn Tech Park website

³⁰ “Pratt & Whitney Unveils State-of-the-Art Production Facility”, *The Middletown Press*, February 25, 2015

³¹ “The Future of Defense Workforce in Connecticut”, Connecticut Institute for the 21st Century

For Connecticut to increase local suppliers' competitiveness, two actions should be considered:

- *Factories of the future*: Upgrade suppliers' manufacturing technology and expertise by building a network of "factories of the future" that serve as technology test beds and training facilities.
- *Manufacturing Voucher Program expansion*: Empower capital-constrained suppliers to make larger investments in technology and training by expanding the State's successful Manufacturing Voucher Program.

Factories of the future

Build a network of two or three "factories of the future" to help suppliers upgrade their technology, receive targeted training, and access funding sources. Specific focus areas for training could include:

- *Industry 4.0*, including paperless manufacturing, data and connectivity, analytics and artificial intelligence, human-machine interaction, and digital-to-physical conversion.
- *Advanced materials*, including additive manufacturing, materials science, non-destructive testing, and energy production.
- *Growth drivers*, including inventory management at scale, international trade flows, and talent recruitment and retention.

A high-performing model factory can help by demonstrating the art of the possible, providing test services on modern manufacturing technologies, and assisting with implementation. Factories can also provide access to training and expertise, for example through one- to two-day workshops, webinars, and one-on-one coaching for individual companies.

The first two factories in the network could be Stanley Black & Decker's "Manufactory 4.0" Advanced Manufacturing Center of Excellence in Hartford, focused on Industry 4.0, and UConn's Tech Park in Storrs, focused on advanced materials.

Manufactory 4.0's technology and training offerings could start with paperless manufacturing and later expand to other technology applications and business topics. The expansion into additional topics could be driven by supplier interest and estimated return on investment. Manufactory 4.0 is currently focused on internal Stanley Black & Decker "customers"³², but as part of this new network it could develop an operating model and service offerings for Connecticut's broader supply chain.

UConn Tech Park's focus on advanced materials would complement Manufactory 4.0's focus on Industry 4.0. The Tech Park already has the infrastructure to allow supply chain companies to test technologies and receive training, and can expand its offerings further into the technology implementation process to help companies successfully launch new technologies in their facilities.

³² Stanley Black & Decker interview.

Coordinating efforts across these two factories, and potentially with other sites (such as a location sponsored by another large manufacturer), could occur through a new network such as a “Connecticut Supplier Advanced Technology Consortium”. Such a network would be a lightweight, self-governing body comprised of representatives from each model factory and other senior local stakeholders. The Consortium could be responsible for outlining the roadmap for the overall network and coordinating strategy, operations, and outreach/communications.

An example of such a model factory would be the National Institute for Aviation Research (NIAR) at Wichita State University, which receives \$60 million in annual funding from private industry and government contracts, and hosts small multi-day workshops with about 15 attendees on advanced manufacturing topics for \$755-3,000 per attendee, often working directly with large manufacturers, such as Airbus, to create custom curricula.

Next steps could include:

- *Form an advisory council* (“Connecticut Supplier Advanced Technology Consortium”), with the following near-term agenda:
 - *Work with the VPs of operations and manufacturing* from Connecticut’s largest manufacturers to inform the State’s training and education needs.
 - *Visit similar facilities* to learn from their strengths and challenges, e.g., New York’s Rapid Advancement in Process Intensification Deployment Institute, Chicago’s Digital Manufacturing and Design Innovation Institute, Wichita State University’s NIAR.
 - *Create a comprehensive roadmap*, including timelines and milestones for new technology and service offerings.
- *Kickstart the network of factories* by leveraging the existing Manufactory 4.0 and UConn Tech Park initiatives.

Manufacturing Voucher Program expansion

DECD/CCAT’s Manufacturing Voucher Program (MVP) has created more than 500 jobs to date and increased margin and products exported for hundreds of small companies in Connecticut. The program had \$22 million of new funding in 2017 (\$17 million of which was private industry match), which was 0.09% of State manufacturing GDP in 2017.³³ Similar programs in other states include Virginia’s Clean Energy Manufacturing Incentive Grant Program, which was ~\$6 million in 2016 or 0.94% of state clean energy manufacturing GDP in 2016.³⁴

Connecticut should work with the local manufacturing supply chain to explore how best to expand MVP to support the growth and technology advancement of capital-constrained suppliers. Expansion could be accomplished by adjusting the design of MVP (e.g., grant size, eligibility criteria for the program, allowable funding uses) and/or increasing matched funding from the private sector.

Potential next steps to be considered to develop this action include:

³³ Manufacturing Innovation Fund 2017 Annual Report, Moody’s Analytics.

³⁴ Program website, Moody’s Analytics. Electrical equipment manufacturing used as proxy for clean energy.

- *Explore different designs for MVP* by changing parameters, such as maximum grant size, and estimate the change in impact.
- *Identify new funding sources* to expand the program, such as reallocating funds from less impactful programs.
- *Identify ways to increase private industry engagement* for matching funding.

2b. Become a globally recognized InsurTech hub

A vibrant InsurTech ecosystem in Connecticut would increase important startup activity, attract and retain high-demand digital talent, such as data scientists and agile software developers, and create a pipeline of innovative technology and ideas for the State’s insurance industry. Such an ecosystem would be anchored by the strength of the State’s financial services industry – a top-five contributor to Connecticut’s GDP and employment. The State not only has strong insurance and investment management clusters in Hartford and Fairfield county, respectively, it is also close to the financial hubs of New York and Boston.

While the financial sector is a strength for Connecticut, it also faces material challenges. The State’s financial services sector GDP has declined by 2% annually since the 2008 crisis, compared to the national average of more than 3%³⁵. Looking forward, the State’s low growth may be further compounded by expectations for growth from new solutions and innovations such as digital distribution and automated claims processing, a current weakness for the State³⁶. Such innovation is often driven by early stage startups, for example, artificial intelligence bots commercialized recently by *Lemonade*. The rate of early stage startups is low in Connecticut as highlighted by venture capital (VC) investment of ~\$50 per resident annually compared to the national average of ~\$180³⁷. An example of this challenge was MassMutual’s recent announcement that it will move roughly 1,500 jobs from the Hartford area to Springfield and Boston, citing the importance of being closer to innovation centers and talent³⁸.

While the broader FinTech environment in Connecticut is still nascent (about 60 deals in the past five years, compared to Massachusetts with 260 and New Jersey with 110³⁹), there are green shoots of growth to build from. For example, Hartford has a newly formed InsurTech accelerator (InsurTech Hartford) and the State has had high-profile startup successes including SS&C Technologies, which went public in 2010 and is valued at ~\$12.5 billion⁴⁰. To help build a vibrant InsurTech hub in Connecticut, three actions should be considered:

³⁵ Moody’s analytics

³⁶ McKinsey Global Institute report, 2017 PwC Insurance survey

³⁷ Pitchbook data, January 2018

³⁸ *MassMutual will close Enfield offices*, [Hartford Courant](#), February 13, 2017

³⁹ Pitchbook data, December 2017

⁴⁰ Bloomberg data, NASDAQ: SSNC, February 16, 2018

- ***Identify strategic focus areas***: Consolidate energy and efforts in specific sub-areas of FinTech, such as InsurTech⁴¹, RegTech⁴², and cybersecurity to focus and differentiate the State from competing FinTech clusters in Boston and New York.
- ***Scale up startup accelerator capacity***: Increase accelerator capacity by 3-5x to align closer to at-scale hubs, by attracting more funding and providing more support services to achieve a critical mass of entrepreneurial activity and expertise.
- ***Champion Connecticut's InsurTech brand***: Celebrate successes, by investing in marketing and other programs to increase external awareness.

Identify strategic areas of focus

FinTech is gaining global attention and energy with many other regions aggressively investing in the sector. For Connecticut to compete, it will need to focus on sub-areas where the State can outperform.

Connecticut should bring together the relevant industry stakeholders and agree on where to focus within FinTech. Selection of a focus area could be determined by considering priority areas for local large insurance companies, the external landscape (e.g., sub-areas that other regions are already focusing on), sector trends, and expected future deal flow. Preliminary discussions and research suggest that InsurTech, RegTech, and cybersecurity are promising areas to consider given Connecticut's assets.

Scale up startup accelerator capacity

The volume of related activity in Connecticut must increase to capture the attention of large local companies and external investors. A high percentage of incumbent insurance companies, natural investors in this space, spend a majority of their search and discovery capacity scanning for InsurTech deals in the greater San Francisco area (including Silicon Valley) and New York. An increase in the local accelerator capacity and entrepreneurial support targeting InsurTech will be an important step in enhancing the quality of our local innovation pipeline. Several potential actions could be considered to achieve this:

- ***Expand capacity of existing and new accelerators*** through additional funding. A variety of funding models could be used to achieve this, including: a public-private partnership (e.g., MassChallenge, where State resources were combined with \$2 million in funding from corporates and universities), attracting a leading private-sector program (e.g., 500 startups), or a public sector-led effort (e.g., Startup Chile, where the state development agency funded the program).
- ***Strengthen the suite of services offered by accelerators*** and adjacent components of the startup ecosystem. Additional services could include:

⁴¹ Defined as technology innovations designed for the insurance industry

⁴² Defined as technologies aimed to address regulatory challenges in the financial sector

formalized mentorship pairing startups with mentors from industry, VCs, and more mature startups; affiliation with a VC fund to streamline financing in subsequent rounds (e.g., SOSV is a VC fund that has invested in multiple accelerator programs); or a partnership with a co-working space to keep high-performing startups local following acceleration. For example, a partnership with Upward Hartford could provide office space in exchange for a commitment to develop startups in the State.

- *Focus accelerator marketing and recruiting in high-potential countries*, to strengthen the talent pipeline. For example, sourcing startups/founders from Israel and India, where there is abundant talent and where interest has already been shown⁴³, could provide a meaning influx of companies to the State.

Champion Connecticut's InsurTech brand

We need to celebrate our successes more. This is true of our startups generally and will be important for any success of our new InsurTech activity. Connecticut should consider coordinating a new campaign to build awareness of the State's InsurTech successes, impact, and existing support programs. Potential actions to consider include:

- *Host industry conferences* to bring attention to the State, jointly sponsored by the public (e.g., CT Innovations/CT Next) and the private sector, including accelerator partners and leading insurance companies.
- *Create corporate partnerships*, such as cloud hosting by Amazon or preferential data access from local insurers, to attract promising startups. In select instances, partnerships have been shown to increase the number of startups to a location by up to ten times. For example, American Underground has partnerships with Google for Entrepreneurs, which has led to an increasing number of startups using their space⁴⁴.
- *Profile InsurTech successes in industry publications* to increase visibility. Aim to be featured on a top-ten list (e.g., the next ten cities for InsurTech) in an industry publication read by entrepreneurs and insurance leaders.

2c. Become a national leader in innovative care delivery

Connecticut can become a national leader in innovative care delivery. If successful, the State will see better health outcomes and cost savings, and the development of a new ecosystem of innovative providers who will bring new investment and jobs. These will be new, well-paying jobs that also keep us healthy.

Connecticut's Healthcare Innovation Plan outlines an ambitious set of goals to improve the quality and lower the costs of healthcare in the State. The Plan's success hinges on the introduction of several new innovative care practices, including value-based payments, care coordination, and providing care in alternative settings, such as telehealth. Connecticut is relatively well positioned to turn this

⁴³ There are currently 10 Israeli startups domiciled in Hartford at *Upward Hartford*

⁴⁴ American Underground is a startup space supporting 275+ startups located in Durham, NC

vision into a reality, given (i) a unique and strong ecosystem of major commercial payors, government payors, and large health systems; (ii) a geographically dense and diverse population of 3.5 million residents, which forms a representative cross-section of the U.S. population; and (iii) current exciting progress such as the award of a \$45 million federal grant to implement the State's innovative care plan⁴⁵. Execution remains challenging, however. No state has a proven blueprint, and Connecticut faces several specific challenges, including a complex regulatory environment and an aging healthcare workforce short on the skills necessary to deliver new and innovative care.

To realize Connecticut's potential to be a national leader in innovative care delivery, three actions should be considered:

- *Expand and modernize the healthcare workforce*: Enable better care by partnering with colleges on training in digital and alternative care environments and offering attractive incentives to keep health professionals in the State.
- *Create a policy environment supportive of care innovation*: Nurture an ecosystem that promotes provider and payor innovation by improving reimbursement schemes and removing unnecessary regulatory constraints.
- *Catalyze early innovation and experimentation*: Encourage established organizations and startups to build and invest in new solutions, by promoting new partnerships and co-investing alongside them.

Expand and modernize Connecticut's healthcare workforce

Connecticut ranks high on the number of per-capita doctors (5th nationally) and nurses (17th)⁴⁶. However, 39 Health Professional Shortage Areas exist in the State⁴⁷, and 22,000 nursing jobs are at risk of going unfilled by 2025⁴⁸. To meet the health needs of the residents and achieve leadership in innovative care, the sector must attract more talent, educational institutions must produce more quality medical professionals, and the State must convince more of that talent to stay in state to develop their careers.

Potential actions to consider include:

- *Offer incentives for health professionals who stay and practice in the State* for a given number of years. These could include scholarships or debt forgiveness for doctors; Riverside County, California, addressed shortages by offering full scholarships to UC Riverside Medical School to select students who agreed to stay and practice in the region for 5 years after graduation.
- *Work broadly with the State University system to tailor nursing curriculum* to emphasize healthcare innovation, including digital health and care in non-

⁴⁵ Centers for Medicare & Medicaid Services

⁴⁶ Association of American Medical Colleges, 2015; Kaiser Family Foundation State Health Facts, 2014

⁴⁷ Kaiser Family Foundation, 2016

⁴⁸ UConn School of Nursing

traditional settings (e.g., build on the annual “Healthcare Innovation Shark Tank,” which is part of UConn’s ATHENA Research Conference⁴⁹).

- *Explore targeted expansion of nursing education* at Connecticut community colleges and universities (37% of qualified applicants to Associate’s in Nursing programs were rejected nationwide in 2014⁵⁰, highlighting the need for increased capacity).

Create a policy environment supportive of care innovation

To become a leader in care innovation, Connecticut must first become a more attractive market for healthcare companies to invest and innovate in. State payors (Medicaid, State Employee Benefits, etc.) can support and catalyze this innovation by adjusting reimbursement policies to incentivize innovation in care delivery. Regulations can be enhanced to make pilots and partnerships easier and more effective.

Potential actions to consider include:

- *Re-evaluate payment terms for alternative care provision* in State employee and Medicaid/Husky Health programs (e.g., reimbursement rates for telemedicine visits vs. equivalent traditional visits, etc.)
- *Explore behavioral incentives to “nudge” patients on government plans into appropriate alternative care settings.* This could include removing co-pays for a few annual telemedicine visits, for example.
- *Prioritize population health management,* contracting with innovative firms to manage subsets of population, such as in select rural areas.
- *Evaluate licensing reciprocity* convenience for out-of-state nurses and doctors, and scope of practice for nurse practitioners and physician assistants as appropriate (such as writing prescriptions).
- *Convene a public-private task force* to review and improve unnecessary regulatory barriers to innovative care delivery.

Catalyze early innovation and experimentation

Delivering on the promise of alternative health care will require new ideas and solutions. Many of these solutions will come from startups, and from new partnerships and programs by established companies. Supporting an entrepreneurial environment which attracts startups and supports corporate innovation will be critical. The State should look to support high-potential partnerships between providers and payors, and encourage proactive innovation in the space.

Potential actions to consider include:

⁴⁹ UConn Today, 2017

⁵⁰ National League for Nursing

- *Establish a fund to invest in Connecticut startups driving cutting-edge care delivery*, for example, the fund can co-invest with a company to create a state-of-the-art telemedicine call center in Connecticut.
- *Partner with payors and providers to develop innovative care solutions*, such as partnering with a hospital system to arrange bundled payments for specialty services for Medicaid patients.
- *Consider offering funding* for firms providing new and innovative treatment to underserved Connecticut patients, potentially in partnership with philanthropies (e.g., Remote Area Medical Volunteer Corps).

2d. Deliver on Connecticut’s potential as a Biotech R&D hub

Connecticut’s potential to turn its biotech strengths into local jobs and growth remains real, despite recent frustrations. While becoming a market on the scale of the leading global hubs is unrealistic, a more focused and targeted approach can deliver important wins and growth in the short-term, help attract talent to the State, and diversify the economy.

Biotech has been a State priority for over 15 years. The rationale for that interest remains clear – the global industry is expected to grow at 7.4% per year through 2025⁵¹, and the national average biotech salary is three times higher than the average across all industries⁵². Connecticut is home to world-class research assets (Yale ranks 10th in NIH funding⁵³ and 7th academically in biological science⁵⁴), and over 20 biotech startups are located in the New Haven/Branford area⁵⁵. For example, Biohaven had its IPO last year and is now valued at over \$1 billion,⁵⁶ and Arvinas, another New Haven startup, recently penned a licensing deal with Pfizer which could be worth over \$830 million⁵⁷.

Despite strong assets and recent successes, Connecticut has yet to create the “critical mass” of companies in a concentrated location necessary to sustain a biotech hub. Several challenges impede this goal, such as the lack of a clear anchor institution (especially given recent high-profile corporate departure of Alexion), limited ability to attract VC funding and startup resources, and the absence of clearly differentiated areas of expertise or talent.

Connecticut has recently invested heavily in the sector, including \$200 million in the Connecticut Innovations Biotech fund and \$291 million in the Jackson Labs campus

⁵¹ Grand View Research, 2017

⁵² The Scientist 2015 salary survey

⁵³ NIH Website

⁵⁴ US News Best Graduate Biological Sciences Programs, 2014

⁵⁵ Dun & Bradstreet research, 2017

⁵⁶ Yahoo Finance

⁵⁷ PR Newswire, 2018

in Farmington⁵⁸. These investments are important and substantial. It will be important to continue to provide support for the sector to maximize ROI of existing and future investments – but in a more focused and targeted way.

Potential actions to evaluate include:

- *Strengthen engagement between the State and growing local companies:* Help local, high-potential companies grow and believe that the State can remain their home over the long-term.
- *Prioritize specific sub-areas:* Invest in competitive strengths to prioritize specific specialties where Connecticut can compete globally.
- *Cultivate a stronger biotech startup ecosystem:* Help our R&D strength translate into more local growth and jobs, by enabling a stronger biotech environment with more lab and work space, better mentorship, and more and smarter venture funding and growth funding.

Strengthen engagement between the State and growing local companies

Creating a sustainable biotech hub requires a strong foundation of established companies. Unfortunately, recent high-profile exits (e.g., Alexion, Bristol-Myers Squibb) and downsizings (e.g., Boehringer Ingelheim, Pfizer) underscore the need to take deliberate action to retain the companies that serve as a source of renewal for our regional hub. It will be important for the State to identify the current and future companies with the potential to be anchors for the hub, and to engage them on sector strategy. If these conversations do not happen more often and more effectively, there is a risk that we lose potential large future employers as they begin to plan their growth.

Potential actions to evaluate include:

- *Appoint a state biotech ambassador* to act as liaison to top established companies and startups, regularly engaging them to understand their needs and views on what the State and key partners, such as Yale and UConn, need to do to improve.
- *Host regular forums* where firms can share their opinions and needs with the broader community.
- *Evaluate targeted financial incentives* as appropriate for growing companies, such as through the First Five program.

Prioritize specific sub-areas for focus

Investments in the biotech sector have not been focused enough – both across specialties and across geographies from Farmington to New Haven. Selecting areas of focus will help build differentiation and increase the synergies between investments. The goal should be to create high-performing clusters where ideas and

⁵⁸ Connecticut Innovations; Science Magazine, “Connecticut Offers \$291 Million to Land Jackson Lab Branch.” 2011

talent flow between companies, and investments and infrastructure support a community rather than individual firms.

Potential actions to evaluate include:

- *Convene working sessions with key partners* to identify one or two strategic areas of focus from across the biotech spectrum.
- *Prioritize attention and investments in New Haven/Branford*, which now has the highest concentration of biotech firms.
- *Explore opportunities for capturing adjacencies to Yale’s bold new effort on genomics and precision medicine*, which involves building up cutting-edge sequencing capabilities while simultaneously developing a unique patient database leveraging the State’s representative population, an effort led by the Yale Center for Genome Analysis.

Cultivate a stronger biotech startup ecosystem

Turning biotech intellectual property into jobs will require new companies. Unfortunately, our biotech startups don’t have access to the same funding and resources as they would have in Boston or New York. As a result, it is a common story for biotech intellectual property born in Connecticut to be translated into jobs elsewhere. Our local startup infrastructure needs to improve so that more potential-founders see Connecticut as a competitive location for launching and growing their new ventures.

Potential actions to evaluate include:

- *Partner with key academic, medical, and private sector stakeholders* to create a high-quality biotech-specific incubator for early-stage biotech companies with wet lab space. For example, Johnson & Johnson and New York City are collaborating to open a new biotech incubator that will house up to 30 new firms in partnership with the New York Genome Center.
- *Attract private venture capital to biotech*, alongside Connecticut Innovations. This could include recruiting out-of-state bioscience VC funds to establish a Connecticut presence.
- *Continue expanding BioCT’s early-stage mentorship capabilities* and outreach to potential entrepreneurs, such as by approaching VC firms or major local companies to recruit mentors.

3. TRANSFORM THE BUSINESS ENVIRONMENT FOR ENTREPRENEURSHIP AND INNOVATION

Connecticut has many ingredients that drive entrepreneurship and small businesses, including a highly educated population, a track record of research and development, and strong sector clusters. About 40% of Connecticut’s population 25 to 65 years old has a bachelor’s degree or higher, compared to the U.S. average of 32%⁵⁹.

⁵⁹ American Community Survey

Connecticut's record of innovation includes inventing the cotton gin, vulcanized rubber and the helicopter, and today the State continues this impressive legacy, ranking seventh nationally in R&D investments as a percentage of GDP⁶⁰ and eighth in patents per capita⁶¹. The State supports small businesses through the Department of Economic and Community Development, which provides financing, business development assistance, market research and advisory services.

Unfortunately, these strengths are not translating into strong small business or startup performance. The rate of small business formation has declined by almost 20% since its peak in 2002⁶². While small business employment has recovered since the Great Recession in Massachusetts, New Jersey, and New York, employment in Connecticut is still below pre-crisis levels⁶³. As a result, the economy has become more reliant on larger and older companies. More than 50% of the State's employment comes from companies with 500 or more employees, and the total employment in businesses 0-5 years old has declined by a quarter in the ten-year period between 2004-2014⁶⁴.

A major challenge facing Connecticut small businesses is extensive regulations. The State was ranked 40th in the nation on overall business friendliness and 33rd in ease of starting a business by small business owners⁶⁵. Connecticut small businesses struggle with the burden of regulations, licenses, and permits required by the state, ranking 43rd overall on burden of regulations⁶⁶. Similarly, government regulation and policy was the second biggest challenge for small businesses, second only to profitability and growth⁶⁷.

Similarly, the startup environment has slowed, with startup density declining by almost a quarter over the past decade⁶⁸. The State has a strong pipeline of innovative ideas, evidenced by its ranking in the top ten nationally in business and university R&D spend.⁶⁹ However, the State lacks the infrastructure to convert innovative ideas into startups, ranking 24th nationally on VC funding as a percentage of GDP,⁷⁰ 31st on the percentage of adults starting a business per month,⁷¹ and 37th

⁶⁰ National Science Foundation, 2016

⁶¹ US patents and Trademark Office, 2015

⁶² Kauffman Foundation, 2002-2015, percentage of adult population who own a business as their main job

⁶³ US SUSB

⁶⁴ US Census Business Dynamics Statistics, 2004-2014

⁶⁵ The Thumbtack Small Business Survey surveys small business owners and managers across the country to determine national rankings

⁶⁶ The Thumbtack Small Business Survey surveys small business owners and managers across the country to determine national rankings

⁶⁷ CBIA 2016 Survey of Connecticut Small Businesses

⁶⁸ Kauffman Foundation, 2004-2014 [Startup density is defined as number of firms per 1,000 firm population. Startup businesses are defined as firms less than one year old employing at least one person besides the owner]

⁶⁹ National Science Foundation, 2016

⁷⁰ National Venture Capital Association/ PWC, 2017

in the proportion of young firms as a share of total businesses.⁷² While the lack of adequate venture funding, physical space, and support services has hampered startup growth so far, the State has an opportunity to remedy these weaknesses, and build on its strong pipeline of research to nurture a healthy startup environment.

Connecticut should consider two sub-initiatives to transform the business environment for entrepreneurship and innovation:

- **3a. Become the #1 state for small businesses in the Northeast:** Create an unrivaled environment for small businesses by decreasing the regulatory burden to start a business, and improving entrepreneurs' access to resources to grow their businesses.
- **3b. Promote local investment in innovation:** Increase local innovation and startup activity, by deploying new incentives to unlock investments from corporates and individuals and improve the infrastructure to support growing young firms.

3a. Become the number-one state for small and mid-size businesses in the Northeast

Connecticut has an opportunity to become known as a top state for small business in the Northeast by simplifying regulations and centralizing resources. The State already has a robust set of resources available to help small businesses succeed, including funding (Connecticut Innovations, Small Business Express, regional banks), advice (SBDC,⁷³ SCORE⁷⁴), office space (Upward Hartford, CCAT⁷⁵), and market research (CERC⁷⁶).

However, many small businesses are unaware of these resources or find them complicated to navigate. Business owners also face a host of required permits and licenses, with the State ranked 43rd for overall burden of small business regulations.⁷⁷ Centralizing and simplifying requirements will improve the environment for entrepreneurs and small business owners in Connecticut.

Potential actions to consider include:

- *Decrease the small business regulatory burden:* Simplify the regulatory process for small businesses by engaging the community in reviewing and reforming regulations and rethinking new ones to improve business friendliness.

⁷¹ Kauffman Startup Activity Index, 2017

⁷² Longitudinal Business Database, U.S. Census Bureau, 2014

⁷³ Small Business Development Center

⁷⁴ Formerly the Service Corps of Retired Executives, but now known simply as SCORE

⁷⁵ Connecticut Center for Advanced Technology

⁷⁶ Connecticut Economic Resource Center

⁷⁷ The Thumbtack Small Business Survey surveys small business owners and managers across the country to determine national rankings

- *Transform the experience of accessing small business resources:* Ensure faster and easier access to resources for Connecticut’s small businesses, by creating one-stop-shops which bring together the best of Connecticut’s support programs.

Decrease the small business regulatory burden

The State could reduce red tape and rationalize regulations by engaging small business owners, government officials, and interested citizens to identify opportunities for simplification. Approaches the State could take include:

- *Create a commission to review regulations:* The commission could identify opportunities to rationalize and simplify regulations, eliminate unnecessary or low-impact regulations, and set guidelines for establishing future regulations. Government officials would work alongside small business owners to identify their most significant pain points and share their findings with the public through hearings across the State to confirm that interested citizens are also engaged throughout the process. A rigorous process to assess the costs and benefits of the regulations will be needed to prioritize across regulations, and inform decision-making.

New Jersey engaged in a similar endeavor starting from 2010 to 2014 with the submission of a proposal by a bi-partisan group of state legislators and mayors. The New Jersey Red Tape Commission⁷⁸ identified regulations to be rationalized in addition to other opportunities to improve the efficiency of small business services (such as more extensively adopting technology), as well as further recommendations for cutting red tape.

- *Conduct a “zero-based” regulation effort:* The State can task an agile team with going through the process of establishing or running a business from the ground-up and identifying pain-points along the way. The task force would work alongside government officials to build the new process from scratch, eliminating the main pain-points, while also ensuring that all critical information and legal requirements are being met by the State. The task force could also develop better ways for agencies to work together to avoid redundancies and capture efficiency savings.

A similar effort called the Business Customer Service Initiative⁷⁹ was conducted in New York City. The initiative was informed by interviews, site visits, and feedback collected throughout New York City. It aimed to save business owners’ time, reduce their confusion, and decrease their effort, all while better managing risk for the city.

- *Signal commitment to business with policy changes and statements:* Government legislators can use decisive and well-publicized statements and policy changes to signal commitment to small businesses. Possible actions to consider include, issuing a moratorium on new small business regulations for

⁷⁸ http://www.nj.gov/state/dos_red_tape.html

⁷⁹ <http://www1.nyc.gov/office-of-the-mayor/news/235-12/mayor-bloomberg-new-business-customer-service-initiative-designed-institutionalize>

two years, or issuing a statement promising to reduce regulations in the state by 25% within four years.

An example of such an effort was an executive order from Massachusetts Governor Charlie Baker in 2015, directing every agency in the state to review of their regulations over the next year.⁸⁰ The order was a strong commitment to lessening red tape while continuing to protect the environmental integrity, health, safety and welfare of Massachusetts and its people.

Regardless of which approach is taken, interviews and business surveys suggest it is likely that several opportunities for meaningfully reducing red tape will be identified. For example, CBIA identified some regulatory considerations affecting the state's business environment.

1. Agency reluctance to update regulations or adopt new regulations and instead choosing to “regulate” through guidance or policy statements, or on a case-by-case basis in order to avoid what they perceive as an overly burdensome regulatory adoption process;
2. Regulations that don't reflect an adequate understanding of, or concern for, their impacts on economic growth;
3. Regulations that are out-of-date with the latest science, technology and marketplace developments;
4. Regulations that are more aggressive than many or all other states and the federal government; and
5. Regulatory enforcement that can be overly aggressive with respect to first-time minor violations

(CBIA 2018)

Transform the experience of accessing small business resources:

Connecticut's existing online resources have not been implemented with sufficient attention to the user experience; for example, business owners are often forced to navigate through multiple websites for related needs. Similarly, the State's business hotline run through CERC is not well-known across the State.⁸¹

To simplify the process and improve the customer experience, Connecticut can create a one-stop-shop, which provides different channels, including a physical one-stop-shop, improved hotline, mobile app and improved web portal. Such a program could provide the following:

- *Easy access for the business community to existing resources* including: funding sources, (Connecticut Innovations, DECD,⁸² regional banks with

⁸⁰ EO No. 562: To Reduce Unnecessary Regulatory Burden, 2015, <https://www.mass.gov/executive-orders/no-562-to-reduce-unnecessary-regulatory-burden>

⁸¹ Connecticut Economic Resource Center

⁸² Department of Economic and Community Development

small business loans), advice (SBDC, ⁸³ SCORE⁸⁴), office space (Upward Hartford, CCAT⁸⁵) and market research (CERC⁸⁶).

- *A tool that dynamically generates a company-specific list of permits and licenses required for a new business based on their type, location, size and sector.*
- *Curated access to directory data to facilitate better connections with potential suppliers, customers and partners.*

A best-in-class example of an online one-stop-shop was recently created by the City of Los Angeles with a portion of its funding coming from a \$250,000 Small Business Administration grant. The LA Business Portal website includes all resources for permits and information for municipal agencies and as well as FAQs on how to operate small business. In addition, a dynamic “startup guide” takes new business owners through a set of only five questions to generate a complete list of licenses and permits required to start their businesses. Los Angeles developed the platform for their website, along with San Francisco, with the goal of eventually making the infrastructure replicable in other geographies. Connecticut could leverage an existing platform such as the LA Business Portal or work with a service provider to create a tailored and simplified business portal.

Success would require simplifying regulations and red tape first.

3b. Promote local investment in innovation

Connecticut’s innovation ecosystem can be jumpstarted through targeted programs to encourage dormant capital within Connecticut corporations to be reinvested locally, and for local high net-worth individuals to pursue local alternative investments that support the State’s economic development.

An increase in innovation activity, especially from startups, can inject new dynamism into the economy and revitalize the talent pool. Connecticut has the potential to be a natural home for innovation. It is a top-ten state in the rankings for total R&D investments as a percentage of GDP (#7), total business R&D as a share of private industry output (#6), and patents approved per capita (#8)^{87,88}. In addition, the State is in the top five for workforce productivity⁸⁹ (about \$135,000 per employee).

However, the State must overcome obstacles to increase its innovation capacity. The Kauffmann Institute ranks Connecticut in the bottom half of small states (25 states in total) for growth entrepreneurship (#15 out of 25) and startup activity (#18 out of 25). The State also ranks in the bottom half for monthly new business

⁸³ Small Business Development Center

⁸⁴ Formerly the Service Corps of Retired Executives, but now known simply as SCORE

⁸⁵ Connecticut Center for Advanced Technology

⁸⁶ Connecticut Economic Resource Center

⁸⁷ National Science Foundation, 2017

⁸⁸ US Patent and Trademark Office, 2015

⁸⁹ Moddy’s Analytics. Productivity calculated by total state GDP divided by total employment figures

formation (#31)⁹⁰ and venture capital funding as a percentage of GDP (#24)⁹¹. Connecticut does not have enough accelerators, incubators, and labs to facilitate innovation from startups. In 2016 Connecticut accelerated five startups from two programs, ranking last in absolute terms across all states and Canadian provinces with accelerator programs⁹². Startup ecosystems in other states, including accelerators, incubators, and other entrepreneur-focused programs, have led to dynamic job creation and economic activity (e.g., New York's NYU Tandon Future Labs, a network of startup business hubs, created over 3,000 jobs and \$4 billion in economic activity⁹³).

To further promote local innovation, two actions could be considered:

- *Use new incentives to increase local investments*: Increase the amount of local startup support provided by large corporates and high net-worth individuals, by creating additional financial incentives for investment.
- *Expand accelerator and incubator capacity*: Improve the quantity and quality of accelerator and incubator spaces across the State to promote a culture of innovation, by partnering with local corporations and educational institutions.

Deploy new incentives to increase local investments

Connecticut has in place several tax incentives for individuals and corporations that make angel and venture capital investments in innovation (e.g., R&D tax credit, angel investor tax credit, etc.). These incentives could be expanded to match the pro-innovation policies of other states, and targeted to increase utilization. To accomplish this, Connecticut could:

- *Create a public-private taskforce to identify companies with the largest unutilized balances of “stranded” R&D tax credits*, diagnose why they are unused, and co-create investment plans to unlock the credits specifically for innovation. The task force could include a balance of appointed government officials and industry leaders.
- *Make it easier for companies to use “stranded” tax credits*, including automated processes and accelerated application reviews.
- *Modify the angel investor tax credit*. Maine and Maryland, for example, offer a 50% tax credit on investment in local businesses⁹⁴ vs. Connecticut's 25% credit.
- *Partner with private investors to create a funding platform*. Connect local entrepreneurs and investors to a central investment portal with up-to-date

⁹⁰ Kauffmann Entrepreneurship Index, 2017

⁹¹ Pitchbook, January 2018

⁹² Gust US and Canada Accelerator report, 2016

⁹³ *Do Tech Incubators Works?*, [Markets Insider](#), Feb. 13, 2017

⁹⁴ Maryland investment credit limited to investments in Biotechnology companies

investment opportunities and funding options similar to Virginia's *Virginia is for Entrepreneurs* (V4AE) initiative⁹⁵.

Expand our accelerator and incubator infrastructure

The State has existing innovation programs for entrepreneurs, including approximately ten hubs (e.g., accelerators, incubators), seven of which are related to CT iHub – an arm of CT Innovations⁹⁶. While industry-specific programs are emerging (e.g., InsurTech Hartford for insurance, and the recently announced Stanley Black & Decker Manufactory 4.0), the ecosystem has more room to grow. To create a more vibrant innovation ecosystem for startups, Connecticut could:

- *Make public co-investments with corporations and other partners*, including philanthropists, to form industry-specific incubation and accelerator programs for high potential sectors such as biotechnology, medical devices, financial services, and advanced manufacturing.
- *Partner with major Connecticut academic institutions* (e.g., Yale, UConn, Fairfield University, University of Hartford) to sponsor or help operate incubators and accelerators through funding, mentorship, and real estate, as well as connect entrepreneurial students to relevant incubators and accelerators.

□ □ □

With its extraordinary strengths, Connecticut can overcome its challenges, build the next-generation workforce, elevate satisfaction of residents, attract new businesses and increase prosperity.

Success will require making progress on many fronts at once, including connecting educational institutions with priority business sectors, reforming regulations to encourage entrepreneurship, and investing in innovations in healthcare delivery, insurance technology and biotechnology. The road will not be easy, but the rewards will be great: Connecticut can accelerate its growth, build quality jobs for its educated and productive workforce, and make life better for all of its citizens.

⁹⁵ *Virginia is for Entrepreneurs*, Impact Alpha, Dec. 11, 2017

⁹⁶ CrunchBase 2018

APPENDIX 5

CITIES

CITIES – FINANCES

Summary

Economic growth occurs when people and ideas come together. This happens in cities, which are the hubs of innovation that enable the exchange of ideas so critical in the knowledge economy of the 21st century. Connecticut needs its major cities to prosper if the state is to prosper. Vital urban cores are at the heart of strong regional economies, providing good jobs and tax revenues to support essential government services. The health of Connecticut cities should matter to all Connecticut citizens not only because of cities' great cultural and educational institutions, the lifesaving medical care provided by their hospitals, and their provision of social services to the needy throughout the state, but also because cities are the centers of commerce and future economic growth for the state.

Challenges

- Connecticut's cities are seriously disadvantaged by their relatively small size, and the lack of metropolitan or county government creates inefficiencies in the delivery of government services. Many states have much larger metropolitan jurisdictions where suburbs share in the cost of services provided in the urban cores. This does not happen in Connecticut, where cities serve and anchor Connecticut's other towns and jurisdictions without such assistance.
- The current heavy reliance on property taxes to fund city services pushes those taxes to levels in our cities far beyond those in the suburbs, thereby creating a strong incentive for those who can leave our urban cores to do so—if only for the economic benefit. This creates an unhealthy circumstance where fewer are asked to pay more, until they too leave.
- Compared to other states, Connecticut provides modest levels of municipal aid to its cities.
- In testimony several mayors focused on the amount of their city's tax exempt property which involves two issues: 1) Real estate tax exemption for non profits which occurs in every state and 2) Connecticut's state-funded PILOT payments, which are another form of municipal aid currently allocated based upon the amount of tax exempt state, hospital, or educational institutions in a jurisdiction.

Options for Consideration

- The legislature should more fully fund PILOT and establish for Connecticut's cities a reliable and predictable municipal aid amount so that cities are able to plan and manage their budgets.

- In return for municipal aid from the state, municipalities should be required to accept state oversight if they are consistently unable to balance their budgets and provide appropriate funding for their public sector employee pension funds.
- The state should continue to provide incentives for municipal shared service agreements to reduce the cost of local government.

CITIES – REAL ESTATE DEVELOPMENT

Summary

Real Estate Development is one of the keys to strengthening Connecticut's cities. Redevelopment of obsolete or deteriorated properties, development of vacant land or underutilized parking lots, transit oriented development, and reclamation of Brownfield sites are all opportunities to increase a city's tax base, provide physical space for companies and construction jobs for the community, and improve the quality of life in our urban cores. Physical environments matter, in how attractive a city is for stimulating investment and business development, and they send important signals about the prosperity and future potential of the community.

Challenges

- Real Estate Development requires skilled and experienced talent, especially since it often involves negotiations with private sector developers, who have plenty of both skill and experience along with lucrative compensation to match.
- It is unrealistic to expect that many communities are able to duplicate on a consistent basis—especially with rotating changes in administrations—the skill sets necessary to create organizations that are able to foster and negotiate deals for a succession of real estate developments so important to cities.

Proposals

The commission recommends the statewide expansion of the model set forth by the Capital Region Development Authority ("CRDA"), a quasi-public agency that has been successful in Hartford. This entity would be leveraged by cities that wish to voluntarily utilize it to lead the development of high profile and high impact projects. This entity would be adjunct to municipal powers, applied as needed, and be released once the project reaches its completion milestones.

There are several components to the CRDA model which could be considered for inclusion in a new entity: a board comprised of senior-level private sector leaders and municipal officials, a project team with a strong leader and small but capable staff, and a stable source of bond funding from the state to support and leverage private sector investment (but not grants).

In order to maximize the impact of the new entity in each metro area, the new entity could form sub-entities focused on each targeted city, with appropriate regional/local public sector representation to prioritize the development needs of that community. To be successful, the boards must also work with developers, municipalities and,

crucially, state agencies to ensure efficient and effective utilization of funds and expertise. Examples of the types of projects to focus on would include:

- Housing – with special attention to attracting the millennial workforce.
- Cultural assets and venues that will help improve the vibrancy of our downtowns.
- Transit-oriented-development, ensuring that public transportation is emphasized.
- Development of abandoned or under-utilized sites (particularly if state-owned) in inner cities (the new entity should consider retaining ownership of the underlying land beneath developments via ground lease to generate stable long-term revenues for the entity).
- Opportunities to work with employers to create and retain jobs.

The new entity would best support the creation of new development projects by providing "gap" financing as CRDA does today. CRDA's funds have generally been used to insert low-interest loans/convertible debt to developers to help fill small but critical funding gaps not able to be financed by private sector lenders. The entity could provide assistance to cities in other ways, including serving as a close coordinator with local transportation and economic planning boards to help establish and execute viable local strategies, as well as the management of assets such as parking lots or venues (as CRDA has done over the past few years) to ensure a long term funding source for the new entity over time.

The creation of this entity must be aligned with the needs and development strategies of any cities served, and act as an adjunct to the municipalities. It should provide a set of services that enhance the ability of the local leadership to carry out the critical economic development initiatives in the area. Therefore funding, while largely from the state coffers, should be allocated by the local boards, with the entity's staff and state cabinet level officials providing required expertise and oversight. It is possible that over time such an entity, if successful, could become self-sustaining.

Because of the importance of this effort to economic growth in the state, the commission recommends the legislature consider initial investments on the order of \$100 million annually once this entity is functioning.

CITIES – EDUCATION

Summary

In order to seriously address the improvement of Connecticut's major cities, the issue of urban schools cannot be ignored; the two are very much linked, and Connecticut's urban schools are struggling. Healthy cities are made up of healthy neighborhoods, and studies have shown that the healthiest neighborhoods for raising children are those with a socioeconomic mix. Moreover the educational system is also a core input to economic growth in the state, as business requires the talent represented by urban youth. Livable cities with excellent schools are a strong draw for young professionals, and other states have not cracked the code on providing this asset; with focus, accountability, and investment, this could be a competitive advantage for Connecticut on which to capitalize. Positioning our cities

as such will reduce outmigration, support in-migration, and promote economic growth for the state.

Challenges

- The current state of our urban K-12 programs pushes the upwardly mobile working, middle class, and young millennials out of our cities, further eroding the tax base and undermining efforts to build vibrant urban centers.
- Connecticut employers have indicated that there are currently skills and professional gaps that need to be addressed by our schools.

Options for Consideration

The Commission proposes several possibilities to be considered by the legislature for improving urban schools:

- The state Department of Education should be directed to intervene to resolve serious performance or behavioral issues as well as to promote improvement and accountability at the district level. Other states have used state leverage to good advantage to further improve urban schools.
- A reevaluation of the current school funding formula should occur, to better incorporate dynamic factors including special services needs and to achieve more equitable allocation among wealthy and urban school systems and provide urban schools with the resources they need.
- Principals are management positions and as such should have term contracts rather than tenured positions. Principals are particularly key, as they are leaders of their enterprise and are also responsible for evaluating new teachers who, after four years, get lifetime tenure.
- It should be required that the state's Next Generation Accountability System ratings be prominently posted in every school, as a way of directly engaging parents and giving all parties a reference point for educational standards and school improvement.
- Allow alternate certification processes to increase access to a larger talent pool for later-stage career professionals to enter teaching.
- Encourage strategic partnerships between education and corporations through industry partnerships. Corporation can directly engage schools by reviewing curricula and credentialing models, providing internships and mentors, hosting competitions, and offering college scholarships—all to help align our school systems with the needs of Connecticut employers.