



COLLEGE STATION 2030: ISSUES AFFECTING A GROWING COMMUNITY

Report prepared by The Bush School of Government &
Public Service Capstone Students

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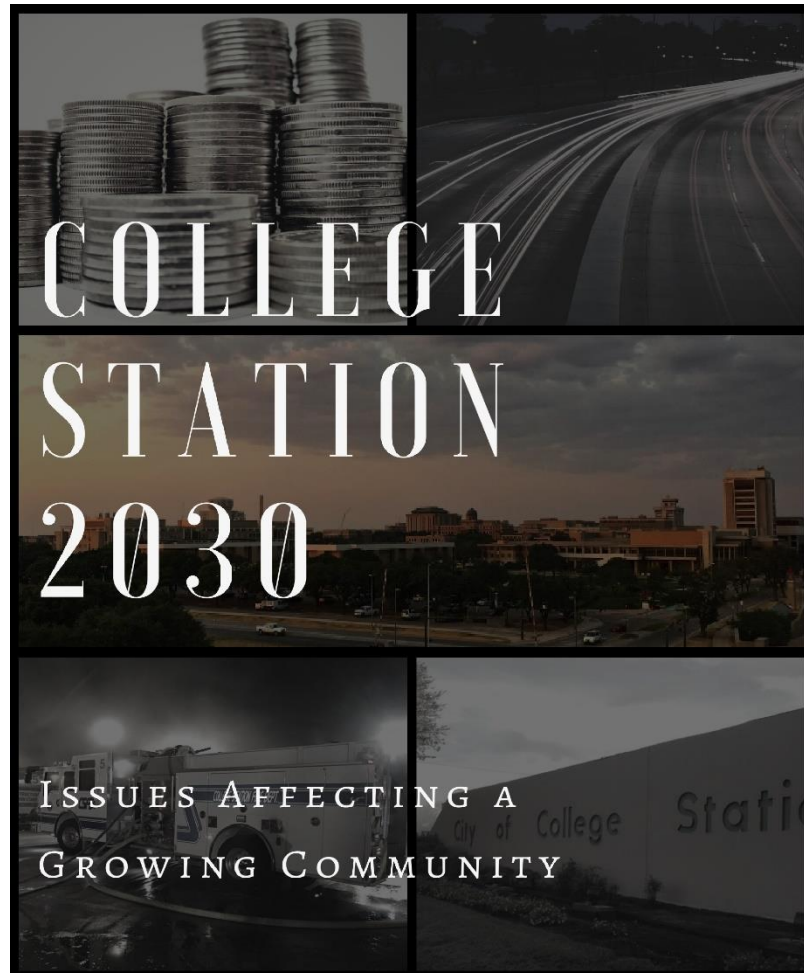
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Part I



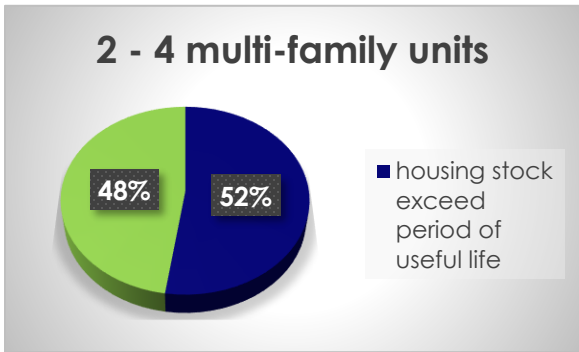
REVENUES

Part 1



Executive Summary:

Section I looks at the different issues that are affecting the amount of revenue the city is able to bring in through traditional taxing methods. This Capstone report recognizes



two areas of specific impact--housing trends and ad valorem tax rates.

These two areas will have great impact on College Station's ability to determine

taxpayers' base in both the short and long term.

The analysis of census tracts for College Station demonstrates that areas located close to the Texas A&M University are the most densely populated by students sometimes referred to as "studentification. Research identifies a set of factors commonly accompanying studentification.

The final part of our section addresses trends in ad valorem rates among comparable cities using panel data for a 5-year period. What the analysis shows unsurprisingly is a much lower ad valorem rate in College Station compared to peer cities. Lastly, we address issues of preemption at the state level that will continue to threaten the City's ability to raise ad valorem rates, potentially stymying growth in the city.

ROADMAP

College Station Housing:

- Background
- Enrollment forecast
- Studentification
- Housing stock
- Conclusion & Policy Options

Impacts on Ad Valorem Revenue

- Background
- Cross-City Comparison
- State Preemption
- Current Ad Valorem Preemption

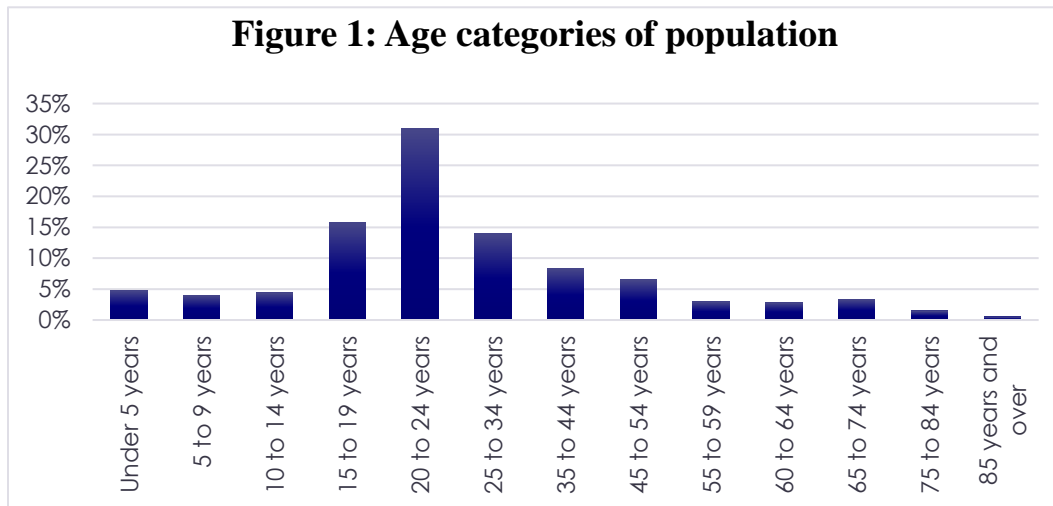


College Station Housing

Background:

Texas A&M University remains one of the epicenters for the surrounding communities of the City of College Station. From attracting people to campus for athletic events, to the academic programs bringing students for at least eight months each year, the City of College Station is connected economically to the university in many ways. However, the continuing inflow of students into the area is advantageous in many ways, also creates challenges that, can undermine sustainable development of the city in the long-term.

The population features of College Station constitute a critical element in long-term sustainability of the city. The population of the city on July 1, 2015 was 108,889 people (Bureau, US Census). The population projects to be 120,000 people in 2020 and 135,779 in 2025 significant increase for the city of this size.¹ The population growth is strongly influenced by an inflow of students. The 18 to 24-age bracket represents 32.7% of the total population, with the second highest share of population represented by the age cohort 25 to 34 or 14.6%. The developers of Economic Development Master Plan assume



that graduate students enrolled at Texas A&M University are a sizeable part of this cohort (Economic Development Master Plan. 2013).

¹ *Analysis of Impediments to Fair Housing: 2015 Update*. Publication. City of College Station, n.d. Web. Oct. 2016. <cstx.gov/modules/showdocument.aspx?documentid=21399>.



The assumption is supported by Census data; there is a significant drop from 14,387 to 7,863 people (age cohort of 35 to 44) that is likely due to students leaving the area after graduation. ²

Enrollment Forecast:

The fall 2016 enrollment of students at Texas A&M University in College Station campus was 55,092 people.³ Student enrollment is forecasted to steadily increase, reaching 70,000 in 2025, 27% more than in 2016. Moreover, during the same period Blinn College is projected to increase from 19,910 (2016) to 25,978 (2025), a 30% increase⁴. For planning purposes, it is necessary to take into consideration both institutions because of their co-location in the same metropolitan area and distribution of available housing stock.

TABLE 1: CURRENT ENROLLMENT

Texas A&M University	55,810
Blinn College	13,587
Total Students Enrolled	69,397
On-campus housing (Texas A&M)	10,860
Off-campus Housing Demand	59,537

In 2014, students resided primarily in off-campus housing; on-campus units satisfied only fourteen percent of a student demand.⁵ Along with the students, a non-student population constitutes tenants of the rental housing. 40.5% of the city households have an income of less than \$25,000. These likely include many student households in which low-income levels can be a misleading indicator of financial circumstances.

In response to the increasing inflow of student population into area, the number of renter-occupied housing units in College Station increased by 3,153 units or sixteen percent from 20,324 in 2010 to 23,477 in 2015. The number of owner-occupied units increased as well. The growth constitutes almost

² United States Census Bureau. N.p., n.d. Web. Dec. 2016.

<<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>>.

³ *Enrollment Profile Spring 2016*. Rep. Data and research services, Texas A&M University, n.d. Web. 10 Oct. 2016.

<<http://dars.tamu.edu/data-and-reports/student/files/epsp16.aspx>>.

⁴ *Enrollment Forecast 2015 - 2025*. Publication. Texas Institutions of Higher Education, 2015. Web. 10 Oct. 2016.

⁵ *Analysis of Impediments to Fair Housing: 2015 Update*. Publication. City of College Station, n.d. Web. Oct. 2016.

<cstx.gov/modules/showdocument.aspx?documentid=21399>.



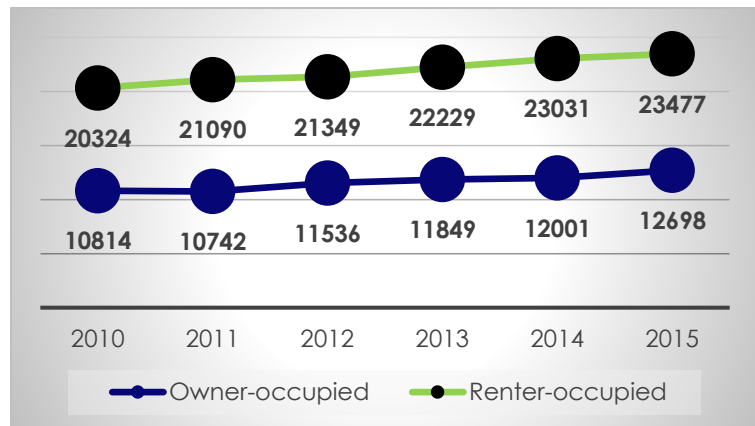
seventeen percent or 1,884 units from 10,814

in 2010 to 12,698 in 2015. The trends indicate a positive perception of the area not only from academic perspectives for students, but as an area for people willing to buy or invest into property.⁶

Despite the growing number of owner-occupied housing units, certain categories of residents' families with

own children demonstrate a decrease in number. Namely, there is a decline in number of owner-occupied households with own children 'under 6', and 'under 6 year and 6 to 17 years old' categories. For the age category under 6 years old the number of families decreased by 120 from 2010 to 2015, whereas the corresponding index for 'under 6 and 6 to 17' category equals to 98 families less. These trends might indicate the presence of features making the area less attractive as a residential area for current and potential homeowners.⁷

FIGURE 2 HOUSING (RENTAL/OWNER OCCUPIED)



Studentification:

The constant influx of students into College Station and expansion of off-campus student housing may partially influence development of the local community and family relocation. The behavior of residential population because of increases of student population is an area of study within a phenomenon called studentification. The studentification is defined as “a displacement of single-family and non-students residents by new student housing.”⁸ Along the consideration of student influx as a promising force of urban regeneration and economic growth, there are concerns about negative impact studentification might cause. These include displacement of non-student renters and increase of property values beyond the reach of young families and certain categories of local inhabitants.⁹ Another study

⁶ United States Census Bureau. N.p., n.d. Web. Dec. 2016. <<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=C>>.

⁷ United States Census Bureau. N.p., n.d. Web. Jan. 2017. <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B25012&prodType=table>

⁸ *Confronting the Challenges of Studentification in Residential Orono Neighborhoods*. Publication. The University of Maine, 2016. Web. Jan. 2017. <<https://umaine.edu/polisci/2014-2015-collaboration-with-the-town-of-orono/>>.

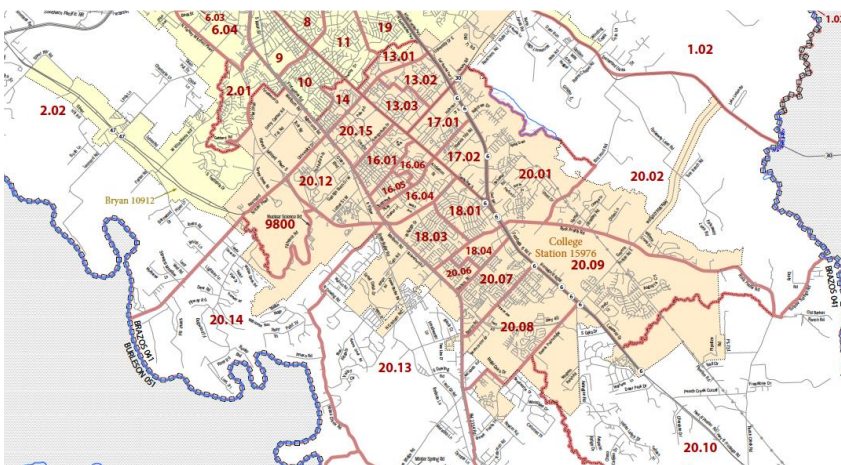
⁹ Baron, Mira G., and Sigal Kaplan. "The impact of studentification on the rental housing market." (2010).



also emphasizes the effect of studentification resulting in inflated housing market, which offers few options for first-time buyers.¹⁰

Smith who considers economic, social, cultural, and physical impacts in the family flight from student neighborhoods presents a more comprehensive approach that “the revalorization and inflation of property prices... is tied to re-commodification of single-family housing or a repackaging of private rented housing to supply housing of multiple occupancy for students”.¹¹ The restructuring gives rise to a tenure profile dominated by private rented and declining level of owner-occupation. This may result in an initial “upgrading of the external physical environment as properties are converted to housing of multiple occupancy. However, it can subsequently lead to a downgrading of the physical environment, depending on the local context.”

F 3: CENSUS TRACT MAP



To measure the actual changes in owner-occupied households within the city and trace the dynamics of family development with own children, the study examined 27 census tracts of College Station and 23 tracts of Bryan. Examination of both entities, determined by co-location of the cities, existing differences in taxation policies,

and infrastructure that might influence on behavior of residents to locate and buy property, allows for a detailed analysis of the population trends changing in the two neighboring communities.

The area of College Station has been experiencing a noticeable increase of renter-occupied households during the last six year. According to the research, 10 tracts out of 27 have a more than 50% increase in number of renter-occupied units from 2010 to 2015. In these cases, two tracts out of ten have an

¹⁰ Hubbard, Phil. "Regulating the social impacts of studentification: a Loughborough case study." *Environment and Planning A* 40.2 (2008): 323-341.



accompanying decrease in number of owner-occupied units. Namely, in the tract 2.02 while the percentage of renter-occupied units increased by 62%, the decrease of owner-occupied units corresponded to two-percent. The tract 20.02 has experienced a more considerable increase of 146% in number of renter-occupied units, whereas the decrease of owner occupied units corresponded to 19%.

Nine tracts out of twenty-seven in College Station experienced an increase in renter-occupied units varying between 10 and 40%. Among these tracts, four demonstrate accompanying decrease of the owner-occupied units. For example, in tract 13.01 while renter-occupied units increased by fifteen percent, the owner-occupied units decreased by twenty percent. In general, eight of the tracts have had a decline in owner-occupied units. Out of eight tracts with a decreasing share of owner occupied units, six tracts has an accompanying decline in owner-occupied families with children under 18 years. The tract 14 represents an extreme case with no owner-occupied families with own children for a period since 2010. Additionally, only tract 13.02 has had a 29% increase of owner-occupied families with own children. Among the children under age 18, the decrease might have taken place due to natural transition of one age bracket to another. However, the detailed examination of age groups of children, in particular under 6 years old and 6 to 17 years old, shows disproportional drops from one to another. In addition, the changes of period from 2010 to 2015 at 'under 6' bracket have drops that indicate on absence of new children under 6 year old within the tract.

In Bryan area, the owner-occupied households demonstrate less noticeable decrease than in College Station. Three tracts out of twenty-three have a decrease of owner-occupied housing units; nine tracts have an increase in number of owner-occupied units, whereas eleven tracts have no updated data for 2015 in Census tract base. For the nine tracts with increasing share of owner-occupied households, there is an accompanying increase of median age among the population. Three tracts in Bryan with a decline of owner-occupied housing units are 1.03, 4, and 10. In all of three cases there is an accompanying decrease of households with own children under age of 18, whereas the number of renter-occupied households is in increase. In tracts 1.03 and 4, the median age in 2015 corresponds to 44.2 and 35.1 with insignificant fluctuations from 2010, assuming that both tracts experience expansion of renter-occupied units due to tenants that are non-students.



Tract 10 is located close to the Texas A&M University. As a result, there are considerable changes in figures of renter/owner-occupied households. In particular, while the share of owner-occupied households decreased by 235 units from 2010, the number of renter-occupied households increased by 798 units. The number of owner-occupied households with own children has declined as well from 161 to 121 units. The median age corresponds to 23 years.

All of these examples point to evidence those tracts experiencing inflow of student population and deterioration of housing units demonstrate a decline in share of owner-occupied units and decline of owner families with children under age of 18. The most of pressure caused by student inflow and resulting move of owner-occupied households shows in tracts located close to the university campus, but is not wholly exclusive to that trend. Moreover, the significant prevalence of renter-occupied households might cause the areas to be absent of family households with children at all. While it is not possible to trace whether the family/individual owners are moving to other tracts after leaving the previously occupied units, it is possible that neighborhoods becomes less attractive to residents willing to become an owner-occupants in tracts influenced by studentification. The observations have a tract-specific character and are not relevant for the city as whole.

Housing stock:

In the literature, an increase of student population in neighborhoods inhabited by families or homeowners themselves causes a rise in concerns among long-time residents regarding the value of property¹². In the case of College Station, the significant change is an increase in housing prices. According to data on home sales and average price, the median price increased from \$62,015 in 1990 to \$204,900 in 2016, which corresponds to 69.7% increase.¹³ The considerable increase in value of housing units is at least partially attributable to high level of student demand for limited rental housing.

¹² *Confronting the Challenges of Studentification in Residential Orono Neighborhoods*. Publication. The University of Maine, 2016. Web. Jan. 2017. <<https://umaine.edu/polisci/2014-2015-collaboration-with-the-town-of-orono/>>.

¹³ Real Estate Center Texas A&M University. *Housing Activity for College Station-Bryan*. N.p., n.d. Web. 12 Sept. 2016. <https://www.recenter.tamu.edu/data/housing-activity/#!/activity/MSA/College_Station-Bryan>.



Continued student demand for rental housing provides attractive rates of return and make it an attractive option in the buy-to-let market¹⁴. The property has become subject of competition between proprietors seeking property to rent that drives up local house prices. It is assumed that when property becomes available, investors and property owners purchase the vacated property and expand the rental business by converting single-family homes into multi-unit rentals, offering them to students seeking off-campus housing. As more students move into off-campus housing, the trend replicates itself and cause ‘family flight’. Family flight, according to Phil Hubbard is a “tendency of families, upon the realization that their communities have changed due to the influx of students moving into their neighborhoods, to move to other areas of town less thoroughly impacted by students.”¹⁵ The high level of housing prices leads to high rental prices, determined by students who are in the position of being able jointly to pay a higher rent in comparison to a single household. The issue becomes especially problematic for low-income residents to find available options.

Along the single-family housing units, there is a considerable part of multi-family housing units providing rental housing for student and non-student tenants. According Real Estate Center at Texas A&M University, the total number of building permits for 5+ family housing units issued for the period from 1980 to 2015 corresponds to 18,080 (table 9. Appendix).

Compounding the issue of the number of units typically associated with students, the multi-family units that are available are depreciating at an alarming rate exceeding the recovery period in terms of rental properties built before 1989. According to IRS publications, rental property has a determinable recovery period or number of years over which you recover its cost or the basis¹⁶. For the residential rental, property acquired for personal use before 1987 and changed to business or income producing after 1986 the IRS recommends using General Depreciation System (GDS) within Modified Accelerated Cost Recovery System (MARCS). The study uses a term of 27.5 years as a recovery period for rental

¹⁴ Rugg, Julie, David Rhodes, and Anwen Jones. "Studying a niche market: UK students and the private rented sector." *Housing Studies* 17.2 (2002): 289-303

¹⁵ Hubbard, Phil. "Geographies of studentification and purpose-built student accommodation: leading separate lives?." *Environment and planning A* 41.8 (2009): 1903-1923.

¹⁶ Internal revenue Service. *Depreciation of Rental Property*. N.p., n.d. Web. Dec. 2016. <<https://www.irs.gov/publications/p527/cho2.html>>.



properties for calculating depreciation. In College Station out the existing stock of 5+ family units, at least 5,078 units or 28% should have become out of recovery period or fully depreciated.¹⁷ Similarly, for 2 – 4 family units the proportion of units built before 1989 and exceeding the recovery period constitutes 59% or 4,055 units.

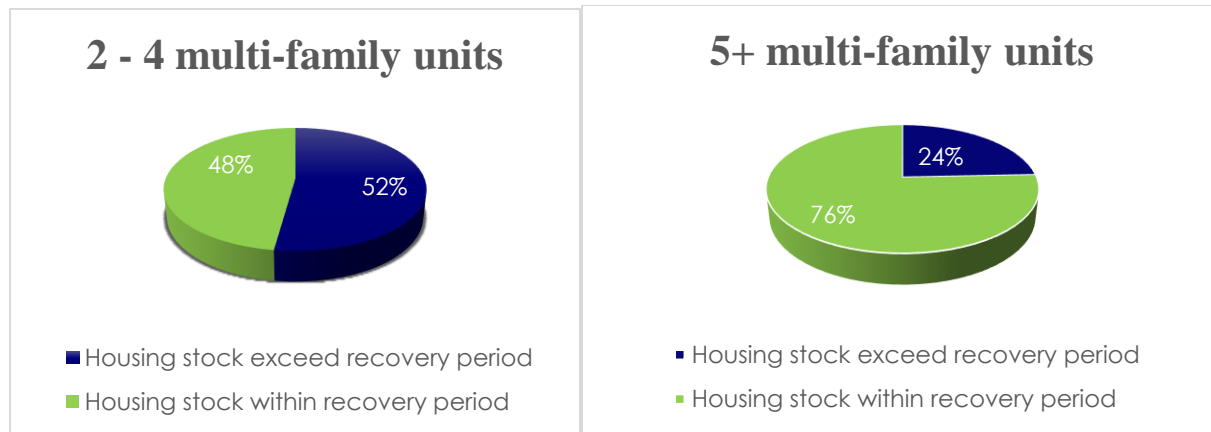


FIGURE 4 & 5: MULTI FAMILY UNITS

Thus, the inflow of the students into College Station procreates multiple economic benefits as well as several challenges. Along property value, appreciation that happened due to continuous demand on off-campus housing, especially for single-family units, some areas of the city experienced a decrease of owner-occupied households. For the same areas, the number of renter-occupied households has increased accordingly. However, the change that attracted attention is a decrease of owner-occupied households with children under the age of six. While, the decrease in age categories from six to 17 could be explained by natural transition of population from one age category to another, the age bracket of under 6 demonstrated a decrease and absence of new incoming children. Finally, the issue that might create additional level of complexity is a deterioration of multi-family housing. The deterioration involves the housing units built before 1989 that exceeded 27.5 years, a recovery period in 2016. The complex of features partially and as a completely relevant to College Station might have influences on three dimension. These are a decision of residents to relocate within the city, decision to depart College Station, and decision to enter the area. Namely, there are concerns that residents will likely to leave the

¹⁷ Real Estate Center Texas A&M University. *Building Permit Data for College Station-Bryan*. N.p., n.d. Web. 12 October. 2016. [https://www.recenter.tamu.edu/data/building-permits/#!/msa/College Station-Bryan%2C TX](https://www.recenter.tamu.edu/data/building-permits/#!/msa/College%20Station-Bryan%2C%20TX)



tracts heavily impacted by studentification and move to other area either out of College Station or to other tract within the city. In addition, the tracts populated by students and continuous spread of rental student housing within the city make it less attractive for incoming residents who might choose to live in specific parts of College Station or in Bryan instead, ultimately affecting the ad valorem revenues coming in to the City.

Conclusion and Policy Options:

While the demographics and population continue to change in the City, College Station will need to adapt to better prepare itself for neighborhood shifts and changes to traditional avenues of revenue. If the City is concerned with these trends, there is the possibility that they could implement ordinances or programs to improve living conditions of 2-4 family units that are more likely to incentivize low-rent seeking families to College Station. Specific regulations could be put in place to encourage redevelopment in multi-family units, but one specific area of concern for the city moving forward is the deterioration of the 5+ family units over time. If College Station officials do not keep an eye on the 5+ family units typically housing college age students, they could find themselves in a similar situation as they are currently with the 2-4 family units typically reserved for low-rent seeking families. If the number of 5+ family units depreciate at similar rates to the 2-4 family units, the City could find itself responding to large drops in property values, and potentially vacant buildings without tax revenues, a trend all too familiar to cities in the Northeast United States.

Finally, if the city prepares accordingly, trends in studentification could be controlled in a way that does not continue to chase families out of neighborhoods. Controlled growth of student housing can add value to depressed neighborhoods, and bolster property values in surrounding neighborhoods, if done in a thoughtful way. As mentioned previously, property values are only one part of the equation when it relates to property tax revenues. The next section will investigate the role College Station's ad valorem rate, or property tax rate plays on the overall revenues for the city while forecasting issues of potential preemption from the state in the future.



Impacts on Ad Valorem Rates

Background:

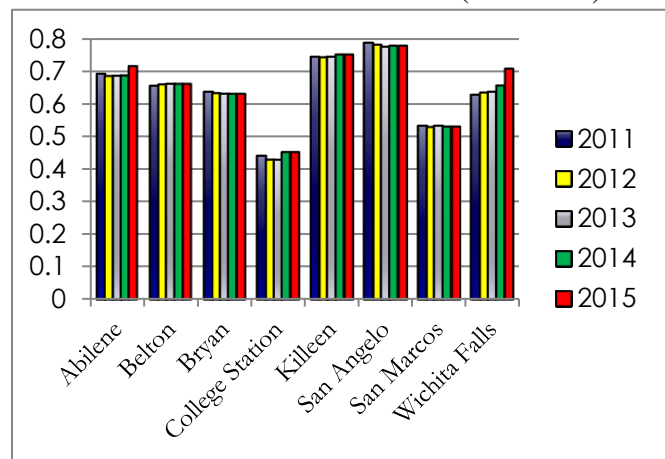
While the shifting demographics of the City coupled with the challenges in the property types and values shifts as mentioned in the previous section, it is important to understand the other side of the property tax revenue patterns in the city and across the state; tax revenue. This section will investigate the nature of the taxing patterns in Texas and College Station, and provide the other side of the revenue equation to help the City make decisions moving forward on how best to raise revenue to provide services in the City.

In 2016, College Station raised the property tax rate from .4525 to .4725, a 2-cent increase per \$100 valuation on property. This move, while met with some resistance in public meetings, moved through the council rather quickly, and without the need of voter approval falling under current referendum requirements under the rollback rates.¹⁸ To understand the importance of this shift in revenue collecting, it is important to know

where College Station came from, and how it compares to comparable cities as designated by city staff.

The 31 cities included in our sample, represent various cities from around the state of Texas that share similar characteristics, may they be comparable population sizes and types, or similar “property neutral land”. In the case of property neutral land, this is qualified as cities with other public institutions or military installations that are exempt from state and local ad valorem taxes can have an adverse impact on the ability to collect revenues that otherwise could have been held from private industry or

FIGURE 6: TOTAL TAX RATES (2011-2015)



¹⁸ Clark, Caitlin. “College Station Holds Second Public Tax Hearing.” *The Eagle* Sept. 2016. Web. http://www.theeagle.com/news/local/college-station-holds-second-public-tax-hearing/article_6234d139-13bf-56ed-812f-d211d8fd89f8.html



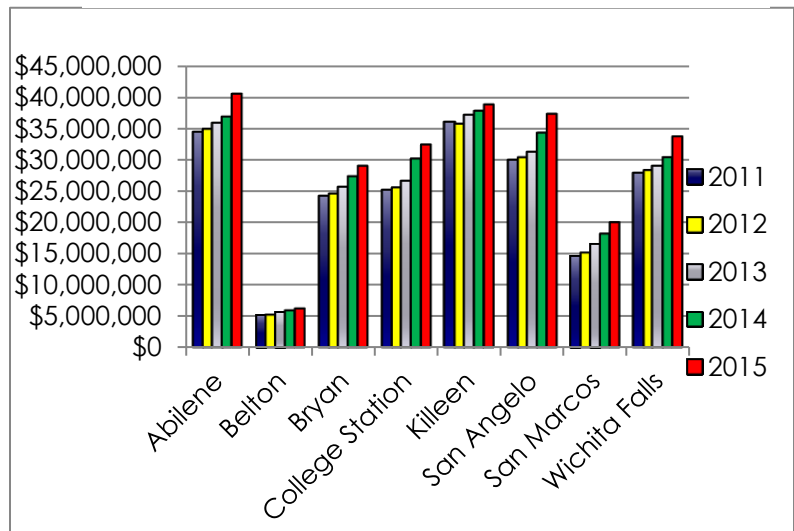
homeowners. As a result, the analysis includes cities like Killeen, Temple, and Wichita Falls-- all cities with universities, or military installations that do not generate ad valorem revenue for those cities.

In addition to the property neutral characteristic, the analysis included cities with neighboring or close sister cities that vie for private industry and revenue sources. While College Station and Bryan share various resources as pointed out later in our emergency services and economic development sections, principles from Charles Tiebout and economic competitive theorists contend that neighboring cities fight for finite market resources, in this case sales and ad valorem tax revenue to provide services to attract more industry.¹⁹ By including municipalities facing similar issues with competitive resources, we hope to see trends in how cities have adapted over the past five years to help provide insight for how College Station should address the shared resource constraint competitively.

Cross-City Comparison:

Using the panel data from the list of 31 comparative cities provided by the City, we could look at how our comparable cities in the state have adapted their policies on property tax increases over the past five years. What we can see from the data is that College Station lags behind close neighbors and comparable cities in its tax rates. In 2015, College Station had one of the lowest tax rates

FIGURE 7: AD VALOREM TAX REVENUE



among comparable cities selected by city staff. Even with the two-cent increase in 2017, the City will continue to lag behind. This might not be a serious issue if property values continue to rise sharply like in recent years, but could be a concern if the values drop as precipitously like they did after the collapse

¹⁹ Tiebout, C. "A Pure Theory of Local Expenditures" *The Journal of Political Economy*. Oct, 1956. Vol. 64 No. 5 pp. 416-424



of the housing market in 2007, or if deteriorating conditions of the multi-family units depreciates the cost of housing across the city as the units age.

While the tax rate in College Station has lagged over time, the amount of revenue coming to the city has grown steadily over the past five years, even with the stagnant total tax rate. As seen in Table 1, while the tax rate has remained constant from 2011 to 2015, the revenue has increased in 2015 dollars adjusted for inflation at a rate of 18.33% from 2011 to 2015, or an average of 3.67% annually. In fact, from 2014 to 2015, ad valorem revenue grew by almost 7.06% and by 11.86% from 2013 to 2014. The increase in the revenues levied occurred with a decrease in the tax rates for two years, and a two-cent increase in 2014, which can explain the large bump of levied ad valorem taxes in 2014 at 11.86%. Contrasted, sales tax revenue has been stagnant only growing by a meager 2.92% adjusted for inflation from 2014 to 2015, and depreciating revenues estimated by the City of College Station are looking at a loss of sales tax revenue of -0.5% from 2015 to 2016 adjusted for inflation.

Ad valorem taxes levied have been a crucial part of the city’s revenue stream that continue to grow, and if that growth is even modest at 3% annually. The city has still failed to meet the watermark to require voter approval for raising the property tax even further, and to meet the impending needs of the city in regards to infrastructure and maintenance of city services, one policy alternative to seriously consider is raising the property tax further, if not past the voter threshold, at least to the point where they are allowed to without consent.

Looking at how the property tax performed with past collections, and using a conservative projected growth of 2% annually (the smallest growth in taxable value at the time was 3.77% in 2012), the city of College Station can expect to see the levies calculated by

Table 2: Potential Revenue from Sunset

	2% Growth	4% Growth	5% Growth
Two Year Gain	\$3,069,823.08	\$8,397,668.02	\$12,443,779.94

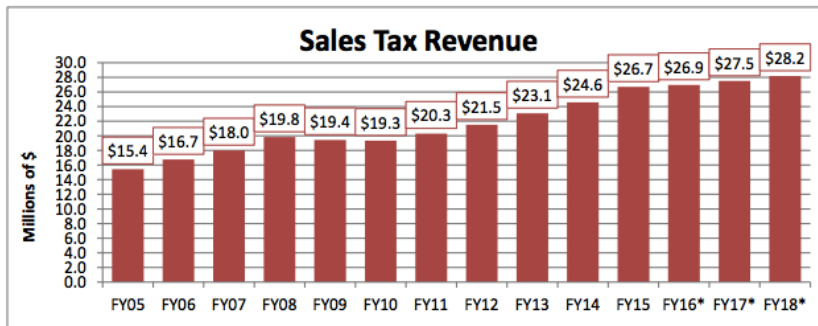
ad valorem taxes at almost nine million more in the year 2030 than they received in 2015. With a 2-cent increase that wouldn’t require voter approval, the City could expect that number to grow as much as \$11



million more in 2030 than they levied in 2015. The change from 2016 to 2017 alone could result in a two million increase in city revenues that they could use for one-time expenses and reduce the tax rate to its pre-increase levels. Going over the current 8% increase threshold for ad valorem rates would require an increase of 3.5-cents in the total tax rate to trigger a voter mechanism with the City’s current tax rates. A 2-cent raise now could fund greater city needs and still keep College Station well below its comparative peers as outlined by the city and in this report. Looking at potential revenues from a two year 2-cent increase, the city could expect anywhere from \$12.5 million dollars at current growth levels, or even as much as \$3 million if growth is even stagnant as seen in Table 4. Various policy options that investigate the potential gains the city could experience at different levels of growth with various policy decisions weighing the pros and cons for each policy option. We believe using this metric will allow the City of College Station to determine the possibilities at their hands and the potential for conflict moving forward.

20

FIGURE 8: COLLEGE STATION SALES TAX



This chart reflects sales tax revenues received and estimated () to be received by the City of College Station.*

Speculating about the will of voters in College Station regarding a property tax increase is a complex problem playing out in College Station and across the state. While College Station would benefit from a higher ad valorem rate to compete with

comparable municipalities, diversifying College Station’s revenue streams will become important with challenges by the state looming over the 85th Texas legislative session. A potentially attractive option for the City may be to increase property tax levels to comparable rates across the state, and use these increased funds in the short term to fund non-reoccurring expenses like infrastructure updates, or small business grant programs for economic incentivization and relocation into depreciating economic regions of the city.

²⁰ "2016-2017 Approved Annual Budget." *City of College Station*. N.p., Oct. 2016. Web. 20 Apr. 2017.



While the 2-cent increase is relatively easy with the current structure of the Texas Tax Code, changes are looming in the near future that bare attention and analysis as the City begins to make decisions on creative ways of alleviating the burden of city revenues on sales and ad valorem taxes. While College Station is ad valorem tax rate has been rather modest and reflective of the desire of local constituents, the rates around the state of Texas have ballooned in recent decades. This increase has created conflict between cities that feel the pressure to offer services to meet state and federal mandates, and calls from the state officials in Austin to trim budgets in local municipalities. This conflict has led to acts of preemption by the state, and in the coming legislative session a potential to come to confrontation.

Preemption and Future State Legislation:

In addition to forecasting the effects of current policy decisions made by the City of College Station on ad valorem levies, it is also important to make note of political realities in the state of Texas, and how decisions made in Austin at the state and local level can affect the ability to obtain revenue for city

programs. Because counties, cities and towns are absent within the United States Constitution, they under the jurisdiction of the state governments. While some states have a more relaxed relationship with their municipal governments in regards to regulations and mandates, there has been an increasing trend toward the use of “preemption” laws from state governments overruling the decisions made by municipal and county



Photo by Bob Daemrich of the Texas Tribune

governments. Two such examples of this in Texas can be seen in the Denton ban on hydraulic fracturing for oil and natural gas excavation, as well as the decision made by Austin voters to require increased regulations of the driving service companies, Uber and Lyft.



In 2015, the citizens of Denton voted in a citywide ballot initiative by a margin of 58-41 to a ban hydraulic fracturing within the corporate city limits, the first of its kind in the state of Texas by a municipality.²¹ State officials on the Railroad Commission (the regulatory body tasked with overseeing the production and collection of minerals in Texas), as well as the Governor's office called for a response from the Texas legislature. Railroad Commissioner David Porter claimed that the fracking ban could threaten Texas's newfound leadership in the energy sector by creating a patchwork of municipal policies to delegate to give the state oversight capabilities in the regulation of mineral excavation.²² By not giving a blanket approach according to state officials, municipalities could hinder economic progress viewed as a priority to the state.

The response from the state came in the form of House Bill 40 (HB40), a piece of legislation that looked to preempt the ability of cities to enact city ordinances affecting the oil and gas industry.²³ In effect, HB 40 nullified Denton's fracking ban, and applied a blanket policy approach to regulatory power of the Railroad Commission in conjunction with the Texas Commission for Environmental Quality to oversee mineral excavation and production. While the bill in effect preempted cities on the actual use of hydraulic fracturing, it also set in law the ability for cities to ban certain types of practices in hydraulic fracturing that might be "commercially reasonable," as well as the "aboveground activity related to an oil and gas operation."²⁴ A half measure attempting to bridge the gap between some of the concerns of local officials and state officials, HB 40 still has the effect of putting the state in the driver's seat for decisions regarding fossil fuels.

HB 40 set a precedent in recent challenges by the state to local autonomy that has stretched into other economic sectors in Texas. As mentioned previously, the city council in Austin passed a citywide ordinance. In 2015, requiring ridesharing companies like Lyft or Uber have their drivers go through city-

²¹ Heinkel-Wolfe, Peggy. "Fracking Banned." *Denton Record-Chronicle*. Nov. 2014, Web. <http://www.dentonrc.com/local-news/local-news-headlines/20141105-fracking-banned.ece>

²² Baker, Max. "Denton Voters Approve State's First Ban on Hydraulic Fracturing." *The Fort Worth Star Telegram*. Nov. 2014. Web. <http://www.star-telegram.com/news/politics-government/article3906359.html>

²³ Darby, et al. "House Bill 40." *Texas Senate Research Center 84th legislative session*. http://www.capitol.state.tx.us/Search/DocViewer.aspx?ID=84_RHB000403A&QueryText=%22HB+40%22&DocType=A

²⁴ *ibid*



initiated fingerprint based background checks in order to operate within the city.²⁵ This ordinance was later challenged by a ballot initiative put forward by affected technology companies to reverse the council decision. The voters in Austin voted in opposition of the initiative by 56%-44%.²⁶ Uber and Lyft threatened and followed through with a promise to leave the city if the ordinance remained, exiting the third largest market in Texas. This is another example where a city decided to impose regulations within their purview to that point, and again we are starting to see the state react.

Thus far, two Texas Senate Bills have been filed to give the state of Texas oversight in regulating ridesharing companies and other technology companies that use contract employment or contract services. On one spectrum, we have SB 176 by College Station's State Senator Schwertner that would look to institute national background checks and zero-tolerance drug programs for permitting purposes. In his bill, Senator Schwertner would circumvent a city's ability to regulate markets within their boundaries and give regulatory responsibility to the Texas Department of Licensing and Regulation (TDLR)²⁷. While this bill concedes many of the points that the city council and citizens of Austin were hoping to achieve with their ordinance and rejection of the prop.1 ballot, it still takes the ability to regulate the industry out of the hands of the city and places it in a regulatory body at the state level, similar to what HB 40 did for mineral rights.

The second Senate Bill, SB 113 by Senator Don Huffines, not only looks to circumvent the city's ability to regulate businesses within its boundaries, but also looks to eliminate even the state from regulating these businesses at all. In essence, the approach posited by Senator Huffines would look to eliminate state requirements for background checks to technology companies like Uber and Lyft, while maintaining such requirements for traditional transportation companies.²⁸ This extreme measure outright prohibits the regulation of ridesharing or for hire companies, and completely strikes out any current regulation provisions that exist in the state transportation code. Both Senator Huffines all-out policy, and

²⁵ Rockwell, Lilly. "Uber, Lyft Support Ballot Initiative on Austin's Ride-Hailing Rules." *Austin American Statesman*. Dec. 2015 Web. <http://www.mystatesman.com/news/local/uber-lyft-support-ballot-initiative-austin-ride-hailing-rules/1SK5R4IX9rMV3SJaGkLUoJ/>

²⁶ Meckelburg, Madlin. "Austin Proposition 1 Defeated." *The Texas Tribune*. May 2017. Web. <https://www.texastribune.org/2016/05/07/early-voting-austin-proposition-against/>

²⁷ Schwertner. "S.B. 176" *Texas Senate 85th Legislative Session*. 2017. <http://www.capitol.state.tx.us/tlodocs/85R/billtext/html/SB00176I.htm>

²⁸ Huffines, Don. "S.B. 113" *Texas Senate 85th Legislative Session* 2017. Web/ <http://www.capitol.state.tx.us/tlodocs/85R/billtext/html/SB00113I.htm>



Senator Schwertner’s blanket approach to regulation powers exhibit the increased scrutiny that cities have faced when trying to enact local ordinances to regulate industry.

Without state guidance, cities will fill the void of policy objectives as seen in Austin and Denton, but recent trends in filed legislation, and passed legislation suggests that the state will impose preemption when it is politically to do so. These examples suggest that there is the potential for future restrictions on property taxes, as the state may look to create limits on the rising costs of property ownership. This assertion does not come without some examples in itself of the political climate in Texas regarding this issue, as we can look to past action by the state over the issue, and the current legislation before the legislature in the 85th legislative session.

Property Tax Preemption during the 85th: HB 15 & SB 2:

Similar to efforts in previous session at curtailing the effects of rising property values, legislative priorities for the 85th legislature looked to curb the ability of cities to regulate their ad valorem rates. During the 84th legislative session in 2015, the legislature enacted SB1 in an attempt to reduce the impact of school district property tax rates increasing homestead exemptions from \$15,000 to 25% of the Texas home median market value, estimated to be around \$33,000. ²⁹ Senate Bill 1 from 2015 while only limited to school district ad valorem exemptions set a strategy and precedent to test the waters for future property tax overhauls leading into the 85th legislative session in 2017.

While the legislature was successful in increasing the number of homestead exemptions, leadership in both houses looked to tackle a different aspect of property taxes, voter transparency. Two bills, SB 2 and HB 15 look to make changes to the way that not only school districts can raise ad valorem funds for debt (I&S) and maintenance and operations (M&O), but rather all taxing authorities. Currently the rollback tax rate is the allowed increase in ad valorem property tax rates without triggering a vote by petition.³⁰ The rollback rate according to Texas Tax Code Section 26.04(c), a city can raise their M&O tax rate by 8% plus the debt rate for the municipality. Both SB2 & HB 15 would reduce the rollback rate from 8%

²⁹ Nelson, et al. “S.B.1” *Texas Senate 85th Legislative Session*. 2015. Web. <http://www.capitol.state.tx.us/tlodocs/84R/analysis/pdf/SB0001F.pdf#navpanes=0>

³⁰ Texas Tax Code Title 1. Property Tax Code, Subtitle D. Appraisal and Assessment, Chapter 26. Assessment. <http://www.statutes.legis.state.tx.us/Docs/TX/htm/TX.26.htm>



to 4%, and automatically trigger elections for the rate increase without the need of a petition.³¹ While Sb2 and HB 15 differ in other areas, these two policies match between the House and Senate tax reform bills, making their likelihood of compromise much higher.

Another important comment to make about these bills and their likelihood of passage is the relatively low bill numbers. Typically House and Senate bills are assigned bill numbers dependent on the time of filing, the later the filing, the higher the bill number. In the case of a few select bills however, the Lieutenant Governor in the Senate, and the Speaker of the House in the lower chamber, reserve low bill numbers, typically 1-20 in which to assign legislative priorities for the offices. Because both bills have relatively low numbers, and similarities in many areas, the likelihood of legislation passing this session that can have an adverse impact on the City of College Station to raise ad valorem revenue. As of writing this section, HB 15 has seen little to no movement in recent days, but SB 2 has made it out of the Senate and is in the Ways and Means Committee in the Texas House of Representatives. The City of College Station along with hundreds of other city officials have voiced opposition to the bill, and have gained traction in recent weeks on potentially curbing the implementation of the bill, but legislators are looking for ways to reduce property tax impacts, and increase transparency in taxing policies by cities.

As Texas continues to change its policies regarding revenue collection, and a statewide cap on total sales tax rates, the City of College Station will need to begin looking for additional sources of revenue, while also considering one time increases in their tax rates to combat challenges in infrastructure, economic incentivization, and emergency services. One way that cities have started to get around legislative mandates from the state is through service impact fees. The next section will look into the creative ways that other cities have used impact fees to supplement revenues while keeping ad valorem rates low or at constant levels to decrease the impact of future legislation by the state.

³¹ Bettencourt, et al. "S.B. 2" *Texas Senate 85th Legislative Session*. 2017 Web. <http://www.capitol.state.tx.us/tlodocs/85R/analysis/pdf/SB00002I.pdf#navpanes=0>

Part II



TRANSPORTATION
AND
INFRASTRUCTURE
Part 2

TRANSPORTATION AND INFRASTRUCTURE

Part II examines various factors regarding transportation and infrastructure in College Station. It is imperative for infrastructure to keep up with the rapid growth of the city. Expanding and redeveloping infrastructure is costly, and therefore using innovative and traditionally unused funding mechanisms is recommended. The following section examines private-public partnerships and impact fees as future options for College Station infrastructure projects. The College Station regional airport, housing both Easterwood Airport and Astin Airport, plays an important role in College Station's growth, economic opportunities, and mobility.

Private-public partnerships can result in innovative projects that can acquire funding much quicker and at less risk than traditionally pursued. An examination of benefits, risks, a case study of a successful Texas private-public partnership, and recommendations will be presented that will assist the city in the event of being presented with a private-public partnership opportunity.

An assessment of impact fees shows that they are beneficial in ensuring that infrastructure keeps pace with city growth. Impact fees are also beneficial for ensuring steady growth, and positively impact those who pay the fee.

The airport is facing several issues, such as limited pilots, United Airlines limiting flights to and from the airport, and overall decrease enplanements. Research on airline and airport trends show that these issues are not unique to Easterwood and Astin.

ROADMAP

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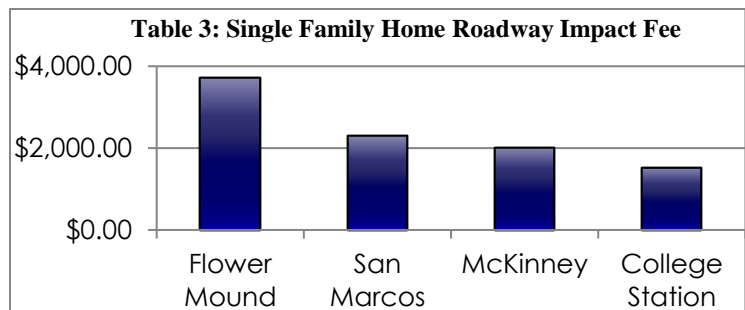
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Impact Fees

Background:

In a recent city poll, many residents in College Station feel that roadways are a top priority in the future of the city, impact fees play a large role in the feasibility of funding new roadways in a fast growing city. In this section, an analysis is provided on the viability of roadway impact fees to ensure sufficient funding for College Station roadways.

The American Planning Association highly regard impact fees as an excellent way to provide a predictable supplemental income for cities that have nowhere else to turn in order to provide for new construction projects.³² Roadway Impact fees are imposed by local government on new development in order to pay for part of infrastructure costs that directly benefit the development. This fee is calculated by the number of service units, and a service unit's price is determined by a "land use assumption" or LUA.³³ The LUA is a prediction of growth in the respective city, giving specific values to certain types of businesses. When a developer looks to construct a building for a specific use, for example say a grocery store, it is designated a certain amount of service units, and a corresponding amount of fees are assessed.³⁴ Typically, these impact fees are a flat rate, such as a one-time fee of \$500 on each unit within a new apartment complex, taxed one time up front.



College Station has already implemented impact fees in the city in order to help fund capital improvements, especially roadways. The City currently enforces impact fees on both commercial and residential construction, for both water utilities and roadways. College Station has a very low impact fee rate compared to cities that currently enforce impact fees. (See Table 1) It is too early to tell if these

³² American Planning Association. *APA Policy Guide on Impact Fees*. Planning.org

³³ Gaines, James (2007) *Impact Fees: Crunching the Numbers Terre Grand*. Texas A&M University Real Estate Center. Retrieved from www.assets.recenter.tamu.edu

³⁴ *ibid*

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impact fees will cause specific issues such as slowed growth, especially since the impact fees do not take effect until December 2017. Looking at research on the budding revenue source can offer insight into the potential impacts these fees can have on College Station as the city grows.

The Argument for Impact Fees

While impact fees may propose a concern for developers interested in building in impact zones, certain benefits can outweigh the burden. First, research shows that some developers see impact fees as beneficial for increased quality of life. (Stepanek, 1990)³⁵ As College Station continues to grow, the city has the option to ease the rate schedule upward since the city's impact fee rate is well below the maximum allowed by law, fifty percent of the total cost of the infrastructure expenditures. A report by Alfred C. Nelson, a scholar with research on impact fees, claims that impact fees seem to only stifle development in the short run, and that long run development is not normally affected. (Nelson, 2005)³⁶ This issue will likely be resolved with the implementation of impact fees in increments, much like College Station has decided to do over the next two years. (College Station, 2016)³⁷ Because these impact fees are typically assessed only once, they can be borne out over time.

One of the more frequent arguments made against impact fees is that they put a burden on new homebuyers and companies. Research is not clear about who ultimately bears the cost, though Watkins surmised that it mostly falls on developers.³⁸ If the fee does fall on developers, there is an upside in regards to affordability. Impact fees can promote more efficient land use that maximizes density. All else being equal, more efficient land use promotes more affordable housing, as developers become more conscious of wasted space.³⁹

In regards to retail, if the goods provided by the company are price inelastic (demand outweighs supply), the consumer would bear the cost of impact fees in small business settings. However, in a major retail

³⁵ Stepanek, S. (1990). *Paving the road for development: Heightened regulation ties projects to infrastructure improvements*. Buildings, 84(9), 118.

³⁶ Nelson, Arthur (2005) *Impacts of Impact Fees: A Report to the City of Albuquerque, New Mexico* Virginia Tech

³⁷ College Station, City of (2016) Roadway Impact Fees, Powerpoint Presentation by the City of College Station Planning & Zoning Department. Retrieved from www.blog.cstx.gov

³⁸ Watkins, A. 1999. *Impacts of Land Development Charges*. Land Economics. 75 (3): 415-424.

³⁹ Been, Vicki (2005) *Impact Fees and Housing Affordability* Cityscape Vol. 8 No. 1

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setting such as super market, the price change would be negligible.⁴⁰ Therefore, it is critical to take into account the effect of impact fees on small business, and possibly account for those impacts with specific policy protections.

As for single family homes, if a developer would like to build a particular number of homes on their land, the developer will assume part the costs of building roads, water, and sewage infrastructure and lump these costs within the risks of developing such a property, thus removing part of the construction costs off of the general taxpayer in the city. This is especially important in fast growing areas where the city cannot keep up with the demand. Without impact fees, the city must build roads through undeveloped land and the citizens must bear the full cost. Furthermore, if the city puts forth the effort in building infrastructure, landowners and developers may not be bound to make any improvements immediately. Impact fees as a result can encourage growth along with infrastructure improvements and increase the supply of buildable land, increasing property tax revenue, while also not bearing the total cost of new roadways and other forms of infrastructure.⁴¹

According to research conducted by Nelson and Moody, impact fees do not cause detrimental economic effects.⁴² In fact, they reported that impact fees in a Florida study did not slow job growth, but rather increased job growth. Burge (2005)⁴³ concluded that this is likely because impact fees are assessed only when new construction is needed, or in other words, what the market can bear. (Burge, 2005)⁴⁴ Nevertheless, the primary purpose of impact fees is not to burden developers, but rather remove the burden of municipal infrastructure development from the general taxpayer.

⁴⁰ Altshuler, Alan, and Jose Gomez-Ibanez. *Regulation for Revenue: The Political Economy of Land Use Exactions.* Washington: Brookings and Cambridge: Lincoln Institute of Land Policy. 1993

⁴¹ Nelson, Arthur, Mitch Moody *"Paying for Prosperity: Impact Fees and Growth"* The Brookings Institution Center on Urban and Metropolitan Policy 2003.

⁴² *ibid*

⁴³ Burge, Douglas. *"Impact Fees in Relation to Housing Prices and Affordable Housing Supply A Guide to Impact Fees and Housing Affordability"* 2005

⁴⁴ *ibid*

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Assessing the Effect of Impact Fees

Concerned citizens and developers argue that impact fees are a tax and act as a hindrance to business and developers. Because impact fees are imposed on certain neighborhoods rather than the City population as a whole, a more appropriate description would be a dedicated tax, or fee, as they raise revenues for very specialized purposes. Furthermore, this fee is applied to the developer, not directly to the taxpayer, and therefore serves to disperse the cost among the entire economy, rather than on any one individual taxpayer.

While single-family homes are most affected by impact fees. In fact, one study concluded that with every dollar that the city charges, affected home prices rise by approximately \$1.50, the effect could be better associated with general growth rather than any one fee or tax.⁴⁵ In a city with already inflated housing prices, impact fees do not necessarily cause housing prices to rise. Burge argues that rising prices are allowed due to demand driving them up.⁴⁶ In other words, cities that have impact fees are of higher demand, therefore the supply of homes is limited, and the buyer is willing to pay the additional price. One measure of the effects of impact fees is the number of housing permits requested from the city. Burge observed that when impact fees are imposed for the first time, there could be a run of construction before the fees are put into effect and a relatively lower application number immediately afterward. The effects of imposing new impact fees in College Station is unclear, however, it is entirely possible that the long run effects are likely to be negligible. Regardless of economic effects, Ross argued that cities should perform reviews of impact fees every two years to ensure that land use assumptions best predict the future growth of the city, and that fee amounts are reasonable and relevant to developers.

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Expanding the Use of Impact Fees

⁴⁵ Campbell, Douglas. *The Incidence of Development Impact Fees*. Dissertation, Georgia State University. 2004.

⁴⁶ Burge, Douglas "Impact Fees in Relation to Housing Prices and Affordable Housing Supply A Guide to Impact Fees and Housing Affordability" 2005

⁴⁷ Ross, Dennis "Impact Fees: Practical Guide For Calculation And Implementation" Journal of Urban Planning and Development. 1992

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College Station has already established citywide impact fees, as well as roadway maintenance fees. In order to take advantage fully of the benefits of impact fees, the city should ensure that impact fees are implemented in the Extraterritorial Jurisdiction, especially if the city does not plan to annex any land in the near future. A number of new single-family housing developments are underway just outside of the southern city limits. Texas statutes allow cities to impose impact fees on capital improvements outside the city limits and within the ETJ for all improvements except roadways. Since a considerable amount of development is occurring outside of the city limits and within the ETJ, the city should seriously consider how it could implement impact fees for water and sewer structures within the ETJ.

Texas Local Government Code states in Title 12. C, Section 395.001(9) states,

(b)"Political subdivisions may enact or impose impact fees on land within their corporate boundaries or extraterritorial jurisdictions only by complying with this chapter, except that impact fees may not be enacted or imposed in the extraterritorial jurisdiction for roadway facilities.

(c) A municipality may contract to provide capital improvements, except roadway facilities, to an area outside its corporate boundaries and extraterritorial jurisdiction and may charge an impact fee under the contract, but if an impact fee is charged in that area, the municipality must comply with this chapter.

If College Station decides to implement such fees in the ETJ, there are certain guidelines to follow, including the appointment of a representative of the ETJ to be in the cities impact fee overview committee.

Conclusion:

Impact fees are important for ensuring a broad funding base for College Station's growth. Such fees are an efficient way to shift the cost of new roads from the taxpayer to the contractor. If that cost shifts to the individual consumer, at least this shift is achieved voluntarily through market mechanisms. Some research shows that impact fees can cause small business prices to rise in inelastic settings, causing the price to be passed on to the consumer. High traffic businesses disseminate the costs to a larger customer base therefore the effect on prices on goods in this setting is negligible. Impact fees promote efficiency in two major ways. First, they promote efficient use of land, and allow land more rapid land development. Second, the funding raised from the fees go directly toward the project, rather than being placed into a general fund and which can be used for unrelated purposes. As College Station moves forward, the city should assess impact fees for any city infrastructure services provided outside of the city limits, especially if the city does not plan to annex land in the near future.

TRANSPORTATION AND INFRASTRUCTURE

Public-Private Partnerships

Background:

As the City of College Station grows, roadways and streets must be constructed and repaired to keep up with the rapid pace of city growth. College Station traditionally utilizes various types of bonds to fund infrastructure projects. The United States' municipal bond market is made up of \$3.7 trillion, funding a significant amount infrastructure projects across the country.⁴⁸

The City of College Station typically funds capital projects through general obligation bonds after approval from citizens through a bond authorization ballot. General obligation bonds are paid off through property tax. In 2015, College Station City Councilmembers approved the use of certificate of obligation debt for funding of a variety of transportation projects ranging from the addition of two lanes on FM 2818 by George Bush, to updating sewage near North Dowling. Unlike general obligation bonds, the use of certificate of obligation debt does not require voter authorization for use, thus giving the City the ability to acquire the funding for the various transportation projects in a quicker pace compared to the traditionally used general obligation bonds.⁴⁹

With interest rates rising in recent months, the City of College Station would benefit from proactive identification of different ways to fund, create, manage, and maintain transportation and infrastructure endeavors. Not only are interest rates rising - population rates within the City are rapidly increasing and creating a strain on current infrastructure. The City of College Station needs to be able to secure funding for transportation projects at a quicker pace than in the past to account for the rapid growth that does not seem to be slowing any time soon.

⁴⁸ Committee on Transportation and Infrastructure of the House of Representatives. Public-Private Partnerships: Balancing the Needs of the Public and Private Sectors to Finance the Nation's Infrastructure. Panel Report. Washington D.C.: United States Congress, 2014.

⁴⁹ The City of College Station. 2016 - 2017: Approved Capital Projects Budget. Municipal Government Report. College Station, TX: City of College Station, 2016. Online.

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Public-private partnerships are one way a government can meet the needs of funding, developing, and maintaining infrastructure projects, all while acquiring funding at a faster pace than traditionally used general obligation bonds. Public-private partnerships are often hailed for their ability to finish a project much quicker than traditional transportation projects are, while also maintaining lower costs.

With the City growing, a public-private partnership, whether state-owned or city-owned, is not a concept too far from reality. Many rapidly growing cities across the nation have turned to public-private partnerships as a tool to meet their needs. This section of the report reviews public-private partnerships, discussing general benefits and risks of pursuing such public-private partnerships, present a case study on a successful Texas public-private partnership, and lastly, provides options for the City of College Station in regards to pursuing a public-private partnership in the future.

Public-Private Partnerships Overview

Public-private partnerships, or P3 projects, present a unique opportunity for government and private sector collaboration for infrastructure projects. In a P3 project, the government will specify details such as traffic flow and route, establishing measurable outcomes for the private company to meet. The private company is independently tasked with designing and building the project.

As defined by the Government Accountability Office, a P3 project is “a contractual agreement formed between public and private sector partners, allowing more private sector participation than is traditional for government project development. The agreements usually involve a government agency contracting with a private company to design, renovate, construct, operate, maintain, and/or manage a facility or system. While the public sector usually retains ownership in the facility or system, the private party will be given additional decision rights in determining how the project or task will be completed.”⁵⁰ These contracts typically span over long periods of times, extending to multiple decades in some cases.

A few examples of P3 infrastructure projects in Texas include the Port of Galveston’s Cruise Terminal, Dallas’ LBJ Express, and Ft. Worth’s North Tarrant Express. Sixteen different P3 projects across Texas

⁵⁰ Committee on Transportation and Infrastructure of the House of Representatives. Public-Private Partnerships: Balancing the Needs of the Public and Private Sectors to Finance the Nation’s Infrastructure. Panel Report. Washington D.C.: United States Congress, 2014.

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are managed in part by the Texas Department of Transportation (TxDOT.) The LBJ Express and the North Tarrant Express are two examples of TxDOT involved projects, that both include various other government entities including cities⁵¹. P3s can involve a variety of government entities and private partners, or as seen with the Galveston Cruise Terminal, a sole public sector organization collaborating with a few private sector businesses.⁵²

Benefits

Under the right circumstances, a P3 project can deliver many benefits to the community, taxpayers, investors, and other stakeholders. A 2014 panel created by the Committee on Transportation and Infrastructure of the House of Representatives delved into current trends of P3s across a variety of publically funded projects, including transportation, economic development, public buildings, water, and more. The panel identified various benefits to P3 such as innovation, efficiency, expedient capital acquisition, and long-term sustainability.⁵³

An attractive feature of P3s is that private business partners can shoulder the burden of some of the risks that are traditionally shouldered by the taxpayers. The private entities are responsible for completion of the project on time, and for meeting established outcomes set by the public sector partners. Creativity and expediency traditionally found in the private sector can be seen in P3s.⁵⁴ Public Private Partnerships can raise capital quickly through federal loans and equity partners, something particularly appealing to local elected officials and constituents who do not want to raise taxes to secure funding for transportation and infrastructure projects. The Congressional Panel found that “participation of the private sector in financing a project can bring discipline and efficiency to project delivery” which the traditional government provision of funding may lack.⁵⁵

Negative Factors

⁵¹ Graham, Nathan V. "Status of Public Private Partnerships in Texas." 21 October 2016. <http://www.buildsmartbradley.com>. Article. 11th March 2017.

⁵² National Council for Public Private Partnerships. "Port of Galveston Cruise Terminal Development Case Study". 2016. <http://www.ncppp.org/resources/case-studies/transportation-infrastructure/port-of-galveston-cruise-terminal-development/>

⁵³ Committee on Transportation and Infrastructure of the House of Representatives. Public-Private Partnerships: Balancing the Needs of the Public and Private Sectors to Finance the Nation's Infrastructure. Panel Report. Washington D.C.: United States Congress, 2014.

⁵⁴ Ibid

⁵⁵ Ibid

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As beneficial and successful as P3s can be, they are not appropriate for all infrastructure projects, nor are they without risk or complications. P3s come with unique legal implications, and are certainly not lacking in controversy from outspoken taxpayers and elected officials. P3s can also be subject to financial risks, which could ultimately end up in a bankrupt project, or an overall bad investment.

One negative factor of pursuing a public private partnership is the potential for up-front costs. Compared to direct-public provision, or design-build-transfer infrastructure projects, P3s incur “higher financing costs and significant additional legal and consultant costs to structure a successful P3 agreement.”⁵⁶ Various transaction costs can also be associated with P3s, as governments have to “maintain expertise to effectively monitor the P3 contract.”⁵⁷ Scholars have argued that P3s have partners with conflicting goals i.e. public sector goals and private sector goals, which may indirectly lead to higher transaction costs.⁵⁸

Aidan Vining and Anthony E. Boardman in their 2008 research note two main reasons why P3 partners may experience conflict. The first is that the contract for the project is not fully specified, or the work is incapable of being completed. The second is that the partners will have different and opposing goals – the government is trying to minimize expenditures, while the private partner(s) is attempting to maximize profit. Vining and Boardman contend that the private sector partners must have appropriate incentives to deliver a product with low production costs to the government partner. Just as imperative is the need on the government’s behalf to keep from inadvertently incentivizing high production costs for the private partner, which can be a product of a poor contract.⁵⁹

Case Study: The LBJ Express

While academic research can point to certain aspects of P3s, using a case study can outline successful public private partnerships that the City of College Station could emulate. The LBJ Express project began in September 2009, with the Texas Department of Transportation (TxDOT) developing a

⁵⁶ Vining, Aidan R. and Anthony E. Boardman. "Public--Private Partnerships: Eight Rules for Governments." *Public Works Management & Policy*, vol. 13, no. 2, Oct. 2008, pp. 149-161. EBSCOhost, lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bsu&AN=35811386&site=eds-live.

⁵⁷ Ibid

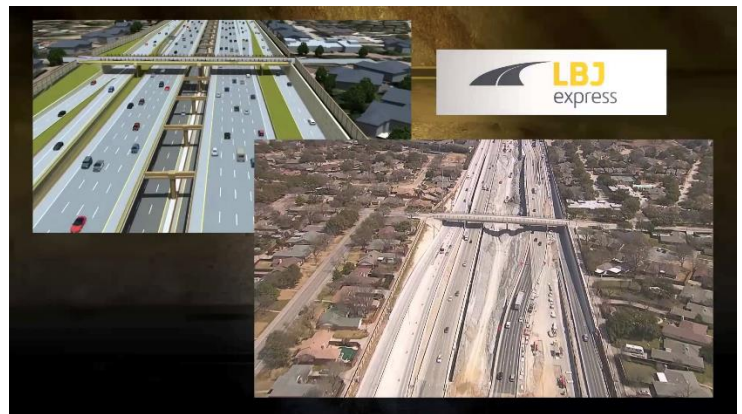
⁵⁸ Ibid

⁵⁹ Ibid

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comprehensive development agreement (CDA) with the LBJ Infrastructure Group – a consortium of various entities and partners. A CDA is the formal mechanism that establishes a partnership between various private and public sector entities. CDAs in Texas are awarded to a group of companies that collaborate on financial details, design specs, construction, maintenance, and operation all under TxDOT guidelines. CDAs require legislative approval, are for TxDOT managed P3s, and traditionally involve tolling elements.⁶⁰ While the LBJ Express is an example of a TxDOT managed P3, and a state-owned development, the City of College Station may find the information useful if toll roads are

Photo of LBJ Expressway



proposed for any of the surrounding state-owned roadways and highways. Knowing whether to advocate for and support a state-involved P3 in the College Station area is beneficial for City administrators.

Project Summary:

The LBJ Express was created to address the need of increasing congestion on Highway I-635. According to the RFP released by TxDOT in 2007, the Dallas-Fort Worth area is the ninth largest region in the country, estimated to grow to nine million people by the year 2030.⁶¹ On February 26th, 2009, the Texas Transportation Commission awarded the aforementioned LBJ Infrastructure Project group with the LBJ Express Project. Prior to P3 development, the Lyndon B Johnson Freeway, or I-635, existed as “a major artery, forming an arc around a large part of (Dallas) and carrying more than 270,000 vehicles a day”.⁶² Significantly widening this highway was not an option, as many residential neighborhoods and commercial developments exist alongside it, curbing growth outside of existing roadway.

⁶⁰ TxDOT “LBJ Express Project.” <http://www.txdot.gov/inside-txdot/projects/studies/dallas/635-lbj-cda.html>

⁶¹ TxDOT. LBJ Express Project Information <http://www.txdot.gov/inside-txdot/projects/studies/dallas/635-lbj-cda/i-635.html>

⁶² Ibid

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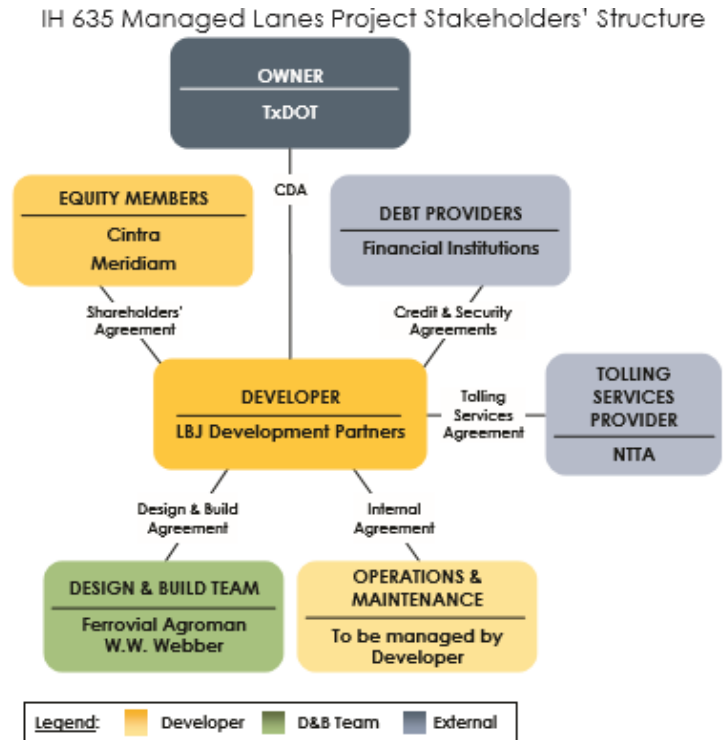
To meet the demands of the growing city and increased usage of the interstate, the LBJ Infrastructure Project group began working to creatively improve the capabilities and capacity of the LBJ Freeway. The project was successfully completed on September 10th, 2015, and opened for public use three months ahead of schedule⁶³. The LBJ Infrastructure Project Group has been leasing the highway from the state of Texas, and will continue to do so until 2061, as the group will be in charge of maintenance and operation until that time.⁶⁴

Design & Partners:

Design for the improved LBJ Freeway included the widening of eight existing lanes by 1 foot, additional shoulders, development of frontage roads, and most notably six managed toll lane roads.⁶⁵ Improvements were made to 17 miles of pre-existing sections of the LBJ Freeway. A previous HOV lane was eliminated, and several miles of depressed lanes were added that allow drivers the ability to choose with ease to travel along the free lanes, or to enter onto the managed toll lanes.⁶⁶

Partners involved in the development of the LBJ Express include the entities organized under the LBJ Infrastructure Project Group and The Texas Department of Transportation. The LBJ Infrastructure Project Group is comprised of Cintra Concesiones de Infraestructuras de Transporte, S.A (Cintra) and Meridiam Infrastructure Finance (Meridiam), the two equity partners of the project, Trinity

Figure 9: LBJ Flow Chart



⁶³ PR, Newswire. "LBJ Express Now Open to Drivers." ["Meridiam-LBJ-Express"]. *PR Newswire US*, 10 Sept. 2015. EBSCOhost, lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=pwh&AN=201509101423PR.NEWS.USPR.NY98771&site=eds-live.

⁶⁴ "Expanding Roadways Takes Driver's Seat in Transportation." *Texas Construction*, vol. 18, no. 6, Ju/Aug12010, p. 69. EBSCOhost, lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=tih&AN=52941591&site=eds-live.

⁶⁵ TxDOT. "LBJ Express Project." <http://www.txdot.gov/inside-txdot/projects/studies/dallas/635-lbj-cda.html>

⁶⁶ Brown, Jeff L. "Multilevel Managed Lanes to Keep Traffic Moving on Dallas Freeway." *Civil Engineering* (08857024), vol. 80, no. 8, Aug. 2010, p. 36. EBSCOhost, lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=f5h&AN=55155728&site=eds-live.

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Infrastructure, a joint-venture between Ferrovial Agroman and its Texas-based subsidiary, W.W. Webber, served as general contractor, carrying out the design and building process of the project. Other non-equity partners include Bridgefarmer & Associates, Inc., tasked with lead design, Macquarie Capital (USA) Inc., who provided financial advising services, and the Dallas Police and Fire Pension System, who were asked to invest in the project.⁶⁷

Finances:

Funding for the LBJ Express project was primarily procured through four methods, totaling up to \$2.7 billion dollars. The Texas Private Activity Bond Surface Transportation Corporation issued \$615 million dollars in private activity bonds (PAB). These PABs “are secured by the project's toll revenues and the concessionaire's rights under the project documents...priced to yield 7.23%.”⁶⁸ The project was also funded through a \$850 million dollar, 40-year, US Department of Transportation’s Transportation Infrastructure Finance and Innovation Act (TIFIA) loan that has a 4.22% interest rate.⁶⁹ The third primary funding source was \$665 million in equity, 25% of the overall cost, with 51% provided by Cintra, 42.4% provided by Meridiam, and the remaining 6.6% provided by the Dallas Police and Fire Pension. In addition to private dollars and money from the federal government, the Texas Department of Transportation (TxDOT) provided \$496 million dollars.⁶⁹

Impact:

Finishing at three months ahead of schedule, the LBJ Express project resulted in over 15 million hours worked by “more than 9,000 jobs to over 250 local and regional construction companies, including 100 Disadvantaged Business Enterprises”.⁷⁰ According to Antonio Alvarez-Cedron, CEO of LBJ Infrastructure Group, the project attracted new businesses to develop along the corridor as it was being constructed. Alvarez-Cedron told PR Newswire “with the opening of this state-of-the-art highway and

⁶⁷ Cintra Concesiones de Infraestructuras de Transporte, S.A. and Meridiam Infrastructure Finance. “IH 635 Managed Lanes Project: A Partnership for Delivering A 21st Century Transportation System – Executive Summary”.

⁶⁸ PR, Newswire. “LBJ Express Now Open to Drivers.” [“Meridiam-LBJ-Express”]. *PR Newswire US*, 10 Sept. 2015. EBSCOhost, lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=pwh&AN=201509101423PR.NEWS.USPR.NY98771&site=eds-live.

⁶⁹ “Expanding Roadways Takes Driver’s Seat in Transportation.” *Texas Construction*, vol. 18, no. 6, Ju/Aug12010, p. 69. EBSCOhost, lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=tih&AN=52941591&site=eds-live.

⁷⁰ PR, Newswire. “LBJ Express Now Open to Drivers.” [“Meridiam-LBJ-Express”]. *PR Newswire US*, 10 Sept. 2015. EBSCOhost, lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=pwh&AN=201509101423PR.NEWS.USPR.NY98771&site=eds-live.

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its almost double capacity, business is returning to the corridor as owners, developers and investors see the enhanced level of access and future potential for this vastly expanded highway corridor.”⁷¹

Perhaps the biggest impact the LBJ Express project resulted in is the increased mobility for drivers, and the option for drivers to choose which lanes to travel in. Between the newly refurbished highway lanes, the new frontage road, and the managed toll, drivers have several options to choose which route makes the most sense for them. The increased options “create a seamless transportation system that allows long-haul travelers along with regional and local commuters the ability to quickly, safely and reliably travel from one side of the DFW Metroplex to the other or anywhere in between.”⁷² The P3 between the state of Texas and the LBJ Infrastructure Project Group is the largest P3s in the state. While toll roads have had varied success in Texas, and as anti-toll road sentiment exists within the state, the LBJ Express demonstrates how a P3 project can acquire funding quickly, deliver innovative solutions to difficult infrastructure challenges, and develop a completed product on time – or even ahead of schedule.

Support for Public-Private Partnerships:

While the details of the new Trump administrations plans for funding infrastructure have yet to become public, P3s are poised to be a priority for infrastructure renewal. During the January 11th Senate confirmation hearing for U.S. Secretary of Transportation, Elaine Chao, broad plans for the proposed trillion dollar infrastructure proposal were discussed. Secretary Chao spoke to P3s in her opening remarks when she said that “as we work together to develop the details of President Trump's infrastructure plan, it is important to note the significant difference between traditional program funding and other innovative financing tools, such as public-private partnerships.”⁷³

Secretary Chao said that planning is underway to include direct federal funding, but that private-sector financing will play a crucial role, noting that a “major challenge is to unleash the potential for private

⁷¹ Ibid

⁷² "Expanding Roadways Takes Driver's Seat in Transportation." *Texas Construction*, vol. 18, no. 6, Ju/Aug12010, p. 69. EBSCOhost, lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=tih&AN=52941591&site=eds-live.

⁷³ Watts, Jim. "Trump to Remove P3 Obstacles. (Cover Story)." *Bond Buyer*, vol. 1, no. 34643, 12 Jan. 2017, pp. 1-4. EBSCOhost, lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bsu&AN=120709740&site=eds-live.

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investment in our nation’s infrastructure.”⁷⁴ One plan to pursue this goal was presented by the Trump campaign leading up to the November election. The plan includes issuing tax credits to private businesses that invest in public infrastructure projects.⁷⁵

Due to increased support and perusal of P3s in Texas, there have been two key pieces of Texas legislation enacted to assist government perusal of P3s – SB 1048 and HB 2475. Both of these bills provide tools for government entities to develop successful P3s. In 2011, SB 1048, known as the Texas Public and Private Facilities and Infrastructure Act of 2011, establishes guidelines for the development of a P3 modeled after the state of Virginia’s Public-Private Education Facilities and Infrastructure Act of 2002. SB 1048 did not establish guidelines for roadway development, but other P3 projects regarding water, sewage, and mass transit facilities are covered in the legislation.⁷⁶ SB 1048 mandates that a financial review or analysis of the project must be completed, establishes criteria to be used in the proposal selection process, and necessitates that the government along with other provisions must monitor the project⁷⁷

Governor Abbott signed into law HB 2475 on June 19, 2015. HB 2475 “established the Center for Alternative Finance and Procurement within the Texas Facilities Commission, which will consult with government agencies regarding best practices for procuring and financing qualifying projects.”⁷⁸ Unlike state agencies, smaller local governments are not mandated to seek counsel from the Center for Alternative Finance and Procurement. However, the Center is not only accessible to local governments, but also meets criteria established by Texas Government Code that necessitates a government use services provided by a professional architect, professional engineer, or a municipal advisor with the appropriate credentials for an independent analysis on the P3 project.⁷⁹

⁷⁴ Ichniowski, Tom. "Chao Hearing Gives Peek at Trump Plan." *ENR: Engineering News-Record*, vol. 278, no. 2, 23 Jan. 2017, pp. 6-7. EBSCOhost, lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=asn&AN=120800686&site=eds-live.

⁷⁵ Ibid

⁷⁶ Gilroy, Leonard. "Offering State and Local Governments New Tools for Infrastructure Delivery in Texas- Interview with Texas State Rep. Jim Murphy." The Reason Foundation. 2015. Website. 2 May 2017. <http://reason.org/news/show/innovators-murphy-texas-ppp>

⁷⁷ Texas State, 82nd Legislature. Senate Bill 1048. June 17, 2011. *Texas Legislature Online*. <http://www.legis.state.tx.us/billlookup/Text.aspx?LegSess=82R&Bill=SB1048>

⁷⁸ National Council for Public Private Partnerships. "Texas Law on P3 Selection Process Takes Effect". 2015. Website. 2 May 2017. <http://www.ncppp.org/texas-law-on-p3-selection-process-takes-effect/>

⁷⁹ Ibid

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Not only are P3s poised to receive future support from the federal government, and have existing support from the Texas Legislature, P3s have been established and pursued in College Station through the Texas A&M University System and private entity partners dating back to 1996. Currently, there are five P3s between the Texas A&M University System and private partners. It is estimated that the five P3s will generate a total of \$900 million in revenues for the school.⁸⁰

The latest P3 is a student-housing complex that will be leased from Texas A&M to NCCD-College Station Properties LLC, who has hired Servitas, LLC to develop and manage the project. Estimates place this P3 project at accounting for two-thirds of overall revenues secured by the five Texas A&M P3 projects.⁸¹ NCCD-College Station will pay Texas A&M \$600 million over the course of 30 years as per the lease agreement between the two partners, and provided Texas A&M with \$18.5 at the start of the lease. Revenues from the housing complex will be used for making payments on the bond that was secured for the development of the complex.⁸²

Policy Options:

Through extensive literature review, this Capstone team presents a recommendation and has identified several best practices for pursuing a P3 for the City of College Station:

Policy Option I: Attend the P3C

The Public-Private Partnership Conference (P3C) is an annual conference held in Dallas, Texas. Leading P3 experts from across the world attend to discuss an array of P3 related topics such as innovations in project delivery, emerging trends, infrastructure challenges, and more. The official P3C website boasts over 1,200 participating delegates. Attending the P3C would give the city of College Station networking

⁸⁰ National Council for Public Private Partnerships. "Texas A&M Announces Latest Housing P3". 2015. Website. 2 May <http://www.ncppp.org/texas-am-announces-latest-housing-p3/>

⁸¹ Sharp, John and Michael K. Young. "Making College Affordable at Texas A&M". The Dallas Morning News. July 2015. Website. 2 May <https://www.dallasnews.com/opinion/commentary/2015/07/30/john-sharp-and-michael-k.-young-making-college-affordable-at-texas-am>

⁸² National Council for Public Private Partnerships. "Texas A&M Announces Latest Housing P3". 2015. Website. 2 May <http://www.ncppp.org/texas-am-announces-latest-housing-p3/>

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opportunities, expert insight on the nature of P3s, and the opportunity to partake in P3 related workshops.⁸³

Notable 2017 presentations and activities include a presentation assessing the potential growth and success of P3s in regards to the new presidential administration, a conversation on infrastructure P3 trends with Michael Likosky, Heads of Infrastructure Practice, 32 Advisors and expert to the United Nations, Organization for Economic Co-operation and Development, and the US Treasury Department, a public-sector employee only workshop, and a panel discussion focusing on best practices for public agencies in pursuing P3s. Attendance fees for the three day workshop in 2017 were \$595 for government employees. Attending this conference would be beneficial for College Station administrators who may one day be seriously considering a P3. Gaining insight and knowledge from industry experts well ahead of pursuing a P3 may prove to be beneficial.⁸⁴

Policy Option II: Conduct a Value for Money Analysis

A value for money (VfM) analysis are recommended when deciding to pursue a P3. A VfM assists government entities by assessing whether or not the P3 is the best option for the public interest. A VfM compares the costs of the intended project if it were to be done by traditional means to the cost of a P3.⁸⁵ The Federal Highway Administration offers a simplified model for a VfM that can be found on their website. First, a hypothetical risk-adjusted cost that represents the traditional approach needs to be developed, also known as the Public Sector Comparator (PSC). The PSC is estimated by calculating various costs such as baseline costs (cost of building, owning, maintaining and delivering a service), ancillary costs (cost of procurement), financing costs (interest costs on public debt and insurance fees), retained (non-transferable risk) and transferable risk, and competitive neutrality (removal of competitive advantages or disadvantages of a public agency, such as tax exemptions).⁸⁶

⁸³ Public Private Partnership Conference & Expo. <http://thep3conference.com/>. 2017. Website. 20 March 2017.

⁸⁴ Public Private Partnership Conference & Expo. <http://thep3conference.com/>. 2017. Website. 20 March 2017.

⁸⁵ Committee on Transportation and Infrastructure of the House of Representatives. "Public-Private Partnerships: Balancing the Needs of the Public and Private Sectors to Finance the Nation's Infrastructure." Panel Report. Washington D.C.: United States Congress, 2014.

⁸⁶ U.S. DOT Federal Highway Administration. "Value for Money Analysis for Public-Private Partnerships (P3s)" Fact Sheet. Washington D.C.

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Finally, estimations for the entire cost of the P3 needs to be estimated. P3 cost estimations are informed by the transferred risks and financing costs, the value of risk that is retained by the public sector, and ancillary costs that the public partner has to bare. Whichever estimation ends up being cheaper is the favorable one. However, there are certain factors that a P3 can offer that are not included in the quantitative model. These factors can lead to a costlier P3 holding favorability over a PSC.⁸⁷

The 2014 panel created by the Committee on Transportation and Infrastructure of the House of Representatives found that in addition to analyzing various costs, the best way to pursue a VfM analysis is to include:

- Outlines of the schedule on which the project will be completed
- Projected timeline for the public sector to pay for the P3 project, particularly if a project involves availability payments
- An estimated cost and schedule for the project if it does not move forward as a P3

Policy Option III: Give Preference to Private Sector Entities with Sufficient Equity at Risk

In some P3 cases, private sector entities may merge to form an entity akin to shell company, as with the LBJ Express Project's Trinity Infrastructure, the joint venture between Ferrovial Agroman and its Texas-based subsidiary. The creation of a private sector entity for the specific purpose of pursuing a P3 gives the parent organization an easy ability to "to minimize the amount of their own capital at risk."⁸⁸ Similarly, partnering with a large number of private sector entities may also delude risk incurred by the private sector partners. While incentives for private sector involvement are important to a P3, a government entity should ensure that the private sectors they are working with have a sufficient amount of equity at risk.⁸⁹

⁸⁷ Committee on Transportation and Infrastructure of the House of Representatives. "Public-Private Partnerships: Balancing the Needs of the Public and Private Sectors to Finance the Nation's Infrastructure." Panel Report. Washington D.C.: United States Congress, 2014.

⁸⁸ Vining, Aidan R. and Anthony E. Boardman. "Public--Private Partnerships: Eight Rules for Governments." *Public Works Management & Policy*, vol. 13, no. 2, Oct. 2008, pp. 149-161. EBSCOhost, lib-
ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bsu&AN=35811386&site=eds-live.

⁸⁹ Ibid

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Policy Option IV: Commit to Transparency and Accountability

Committing to transparency and accountability is a policy option that could help public private partnerships appear more palatable to citizens and policymakers when making decisions on investing public monies. Key components of a P3 should be accessible and transparent for citizens. Citizens should be able to have access to costs, risks, and what factors the government to decide perusal of a P3 used. In an effort to alleviate concerns of citizens of how P3s are initially pursued and decided on as being the best for the public, public hearings may be held. TxDOT held one public hearing for the LBJ Express Project.

If the City of College Station were to pursue a P3, a public hearing is recommended. If a P3 is to be developed, after an appropriate time of project development, the public should be able to access information on the ability of the private partner to meet deliverables and goals. Committing to transparency can be done through what scholars Aidan Vining and Anthony Boardman call establishing a “jurisdictional P3 constitution”. A P3 constitution entails of provisions that require transparency, such as “consistent and timely budget reporting” and making contracts available for public access.⁹⁰

Conclusion:

While a P3 should not be regarded as a funding source, it is an increasingly popular mechanism for governments to complete infrastructure projects by trading risk for higher costs. A P3 is not appropriate for every infrastructure project, thus the importance of utilizing a quality evaluative tool. Value also lies within fundamental preliminary research and networking to glean insight on how P3s function. With President Trump explicitly expressing support and interest in P3s, especially in regards to working to incentivize the private sector to fund infrastructure projects, P3s need to be at the very least something for the City of College Station to consider. Lastly, like with any taxpayer-funded endeavor, P3s should be pursued when they are best for the public’s interest. Considering a P3 for infrastructure projects could one day provide the city of College Station with the opportunity to develop a highly successful, innovative, and low-risk infrastructure product.

⁹⁰ Ibid

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Regional Airports

Background:

Airports offer communities a way for goods and people to travel great distances faster than by other modes of transportation, positively impacting local economies and economic development in surrounding areas. However, an airport is a good investment only if people use it and only if it works in favor of its host community. It is widely agreed by both scholars and practitioners in the business community, “airports affect the economic growth and development of cities and regions.”⁹¹ With Easterwood Airport in College Station and George Bush Intercontinental located nearby in Houston, people are better able to travel to and enjoy the various aspects that make College Station and Texas A&M University unique.

College Station and surrounding counties in the region are positively impacted through the presence of Easterwood Airport, and most notably college football game days at Texas A&M, which would not be the same without the airport. According to Richard Florida, “Airports have a bigger effect on economic development by moving people as opposed to cargo.”⁹² Commercial planes come into Easterwood Airport from Houston and Dallas with passengers from various destinations, while multiple charter planes fly in around the clock, bringing in athletic teams, game officials, donors, visitors, and Aggie alums.

Easterwood Airport is a convenient asset for the community due to its adjacent location to the University. Having an airport allows the city to have a worldwide presence with scholars, speakers, researchers and businesses within an arm’s reach, allowing an ease of travel. Looking at trends and concerns related to the operation of Easterwood Airport and the aviation industry. This section will offer

⁹¹ Florida, Richard. "Airports and the Wealth of Cities." CityLab. N.p., 23 May 2012. Web. 18 Apr. 2017.
<https://www.citylab.com/transportation/2012/05/airports-and-wealth-cities/855/>

⁹² Ibid

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insight on crucial elements within College Station’s closest airport and the challenges Easterwood faces in the coming years.

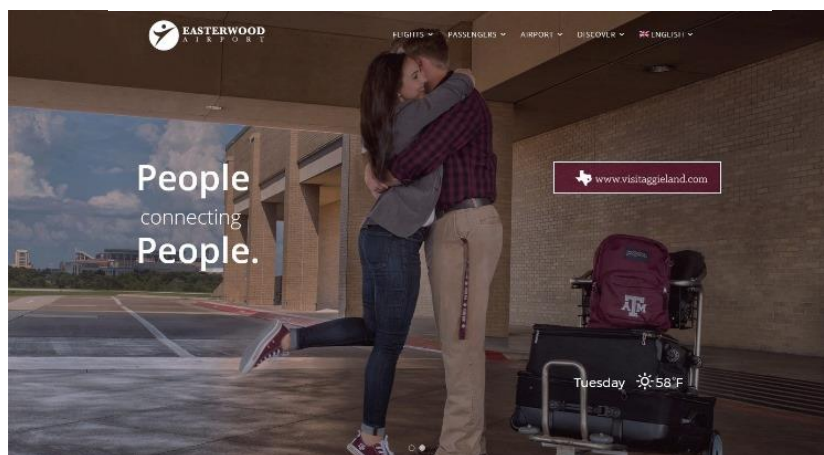
Issues Affecting Regional Airports

Regional airports such as Easterwood Airport are potentially attractive because travelers do not have to spend time driving to a major hub airport. A regional airport often provides quicker, more convenient transportation to a final destination of travel by allowing passengers to book a flight from that smaller airport through a hub and then to their final destination, ideally in less time with fewer worries along the way. Regional airports offer potential conveniences of time, travel ease, luggage handling, and vehicle safety, amongst other pros.

There are substantial questions, however, about the future of regional airports. United and American Airlines are eliminating their smaller fleets and replacing them with larger plane sizes. This change in fleet composition causes huge potential concerns and issues with regional airports. “Airlines

like United are beginning to shed parts of their regional jet fleets for a variety of reasons, including economic ones. Bigger aircraft such as the 737 are less expensive to operate on a per-seat basis,”⁹³ said airline consultant Robert Mann. Introducing planes with larger seating capacity allows airlines to offer better fuel efficiency and a newer fleet to their customers. However, in turn, doing so has led to reduction in or even elimination of service for certain regional airports because of the airlines inability to fill enough seats to justify the flight. Airlines have started to reevaluate how many flights they offer out of certain regional airports because they do not want to fly empty legs. Mike Boyd, a Colorado-based

Easterwood Airport’s Website Homepage



⁹³ Siebenmark, Jerry . "United replacing part of regional jet fleet with Boeing 737s." The Wichita Eagle | Kansas.com. N.p., 21 Jan. 2016. Web. 18 Apr. 2017. <http://www.kansas.com/news/business/aviation/article55814845.html>

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airline consultant, said in the next two years he expects more 50-seat regional jets to be removed from scheduled airline service, hurting small cities that cannot support aircraft with more than 100 seats.⁹⁴ This industry transition may result in a reduction in US domestic departures, ultimately affecting regional airports. Already in 2017, United Airlines has already stopped servicing a few regional airports because the demand was not enough to continue operating there. With transitioning to the new fleet of larger aircraft United Airlines plans on selling differently priced tickets and attracting customers back from competitors with newer amenities and features in these larger aircrafts.

In addition to changes in fleet composition, labor force trends are also adversely affecting regional airports. Pilots tend to start out on smaller fleets and shorter legs afterwards working their way up to fly bigger jets and longer flights, earning higher pay. With a growing pilot shortage⁹⁵, partly due to the numbers of pilots now reaching retirement age, regional pilots are being promoted sooner, leaving regional airports with fewer pilots to serve the short flights. ⁹⁶ According to a report by Ally Schmidt, as many as 30,000 pilots will reach the mandatory retirement age of 65 years by the year 2026. According to a study by North Dakota University, if there are not sufficient new hires to replace them, airlines could face a pilot shortage in three years⁹⁷. According to Ally Schmidt an aviation market analyst, “In the next nine years, by 2026, the pilot shortage could be as high as 15,000.”⁹⁸ With fewer pilots, airlines are driven to offer fewer flights out of regional airports, which may in turn affect major hubs relying on traffic coming in from regional airports.

SkyWest Inc. president and CEO Chip Childs warned Congress in March of a “growing pilot shortage.”⁹⁹ According to Childs, this shortage can lead to the possible grounding of large numbers of aircrafts in US regional airlines’ fleets. Some 18,000 pilots are expected to retire at US mainline airlines

⁹⁴ Ibid

⁹⁵ Karp, Aaron . "Analysis: Regional airline CEO says pilot shortage getting serious." Opinions content from ATWOnline. Air Transport World , 24 Mar. 2017. Web. 18 Apr. 2017.

⁹⁶ Ibid

⁹⁷ Schmidt, Ally . "What Are Airlines Doing to Solve the Pilot Shortage?" What Are Airlines Doing to Solve the Pilot Shortage? - Market Realist. Market Realist , 30 Jan. 2017. Web. 18 Apr. 2017. <http://marketrealist.com/2017/01/what-are-airlines-doing-to-solve-the-pilot-shortage/>

⁹⁸ Ibid

⁹⁹ Karp, Aaron . "Analysis: Regional airline CEO says pilot shortage getting serious." <http://atwonline.com/opinions/analysis-regional-airline-ceo-says-pilot-shortage-getting-serious>

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in the next three years.¹⁰⁰ The shortage is further compounded by a “struggle to produce qualified candidates because of the growing cost of becoming an airline pilot” and the “mandated rule imposed by FAA in 2013 requiring 1,500 hours of flight time before becoming a first officer at a US commercial airline”¹⁰¹.

Finally, another issue plaguing the pilot shortage is the general lack of pilots entering the industry. “Regional players pay much less than their legacy peers even when the regional sector accounts for half or more of all flying.”¹⁰² These trends portend bad news for regional airports if the industry does not make a push to sponsor and support programs that seek out and train pilots to fill in the gap. “In early 2014, the U.S. Government Accountability Office found all but one of the 12 regional airlines interviewed for a report were having trouble finding pilots.”¹⁰³ Most regional airlines are subsidiaries of the major airlines operated in the United States. These issues also impact airports as soon as pilots reach retirement age.

To adjust for the current and impending pilot shortage, airlines have pushed to renovate their aging fleets and bring in new more fuel-efficient larger aircrafts that can serve a regional role and longer leg roles from major hubs. Ease of maintenance also plays a role--parts are more readily available for newer planes as compared to the aging fleets that are being phased out. However, as previously noted, larger aircrafts are not well-suited for some regional airports with lower levels of traffic, leading to reductions in the number of daily flights or even elimination of service.

¹⁰⁰ Ibid

¹⁰¹ Ibid

¹⁰² Schmidt, Ally . "What Are Airlines Doing to Solve the Pilot Shortage?" What Are Airlines Doing to Solve the Pilot Shortage? - Market Realist. Market Realist , 30 Jan. 2017. Web. 18 Apr. 2017. <http://marketrealist.com/2017/01/what-are-airlines-doing-to-solve-the-pilot-shortage/>

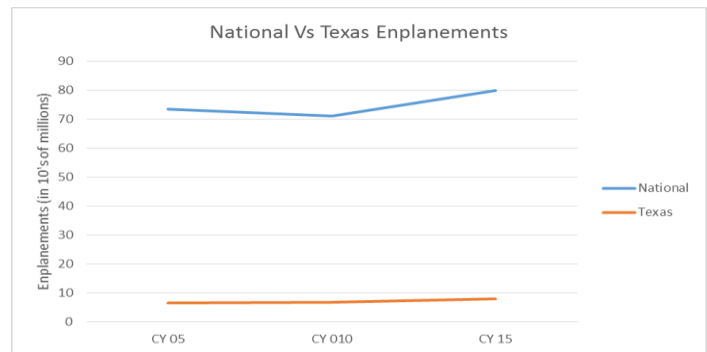
¹⁰³ Trageser, Claire. "The cost of becoming a pilot is making the job a pipe dream." The cost of becoming a pilot is making the job a pipe dream. Mashable, 20 Apr. 2016. Web. 18 Apr. 2017. <http://mashable.com/2016/04/20/regional-pilot-shortage/#IGUUNheT6Gqw>

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National and State Trends

From 2005 to 2015, commercial air travel grew in the United States, as Figure 10 indicates. Enplanements dipped in 2010 due to multiple reasons including the recession and price pressures associated with jet fuel prices, which increased “an average of 10% per year during the 2000-2010”¹⁰⁴. Jet fuel prices affect airline companies because they invest in future prices, locking the airline into a set price to protect them from prices going up. South costs in jet fuel, however, other airlines were not so lucky. During this period “More than 30% of U.S. Airlines filed for Chapter 11 bankruptcy protection during the decade”¹⁰⁵ Presently, the airline industry is seeing a positive trend, driven in large part by low-cost carriers, which now control some 25 percent of the worldwide market¹⁰⁶.

Figure 10: Texas & National Enplanements 2005-2015



In that same time, Texas airports saw steady growth, as can also be seen in Figure 10. Three major airlines operate out of Texas’s major airports. American and Southwest Airlines are both headquartered and operate out of the Dallas/Fort Worth International, while United Airlines (which merged with Houston-based Continental Airlines in 2010) operates out of Bush Intercontinental Airport in Houston. These airlines also have significant presence in other Texas airports such as Austin, San Antonio, McAllen, as well as a number of other smaller and regional airports.

Comparative Regional Airports

Regional airports, like Easterwood in College Station are defined as smaller airports servicing cities and communities within a region, usually offering flights from one or two different commercial carriers and

¹⁰⁴ Greenspun, Philip. "2000-2010: The Decline Of The U.S. Airline Industry." 2000-2010: The Decline Of The U.S. Airline Industry . Business Insider, 04 July 2011. Web. 18 Apr. 2017. <http://www.businessinsider.com/a-few-statistics-on-the-decline-of-the-us-airline-industry-2011-7>

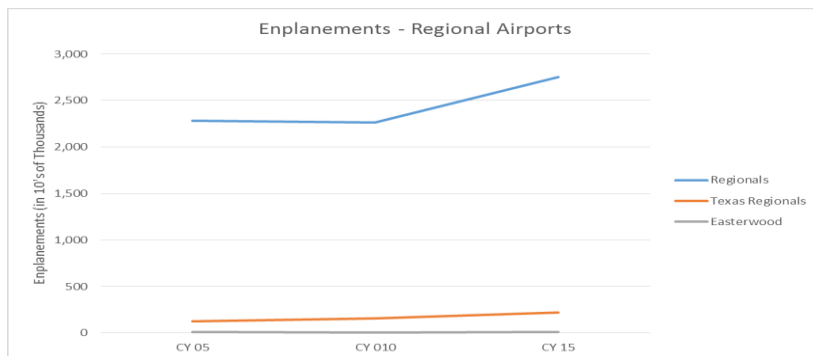
¹⁰⁵ Ibid

¹⁰⁶ Clayton, Andreas Hilz Edward. "2015 Aviation Trends." Strategy& - the global strategy consulting team at PwC. PWC , 09 Dec. 2014. Web. 19 Apr. 2017. <https://www.strategyand.pwc.com/trends/2015-aviation-trends>

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connecting passengers to one or more larger international airports. Easterwood Airport is a regional airport in College Station, TX. Easterwood Airport operates commercial flights offered by American and United Airlines. Within Easterwood Airport is a Fixed Based Operator (FBO) side Astin Aviation, operating charter flights that are coming in and out of College Station, with higher rates of aviation traffic during football season. Both operations at the airport are renovating and making changes intended to make them more competitive and potentially more attractive for new business. Easterwood Airport is facing a list of issues and challenges, many of which are not unique to it but pertain to regional airports across Texas and the Nation. Indeed, these issues are so potentially serious that Easterwood Airport perhaps should not only entertain ideas about how to respond in ways that maintains its vitality and vibrancy, but also make contingency plans for a future when offering commercial flights out of College Station may no longer a viable option.

Figure 11: Enplanements in Regional Airports



While Texas airports and national airports maintained slow growth from 2005 to 2015, national air traffic at regional airports increased sharply. The same applies to regional airports in Texas, such as Abilene Regional and McAllen-Miller International Airport. Air

traffic at Easterwood Airport, however, has not experienced the same growth virtually stagnant from 2005 to 2015. Despite the population growth of the region, and increased use of regional airports across the nation, the trends at Easterwood are rather alarming.

To appreciate the level of uncertainty surrounding the future of regional airlines, it may be informative to compare the level of commercial air traffic at similar sized regional airports. As can be seen in Figure 11, enplanements in College Station were about 90,000 in 2005 and after several dips in the intervening years have rebounded to about 90,000 in 2015. Commercial air traffic has not grown at Easterwood Airport despite rapid growth in College Station and neighboring communities. Furthermore, an industry shift of larger aircrafts flying into smaller regional airports such as Easterwood would set up the airport

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for possible failure. Easterwood customers might rather commute or shuttle to either Houston/Austin for a flight rather than wait for the one available commercial flight that leaves out of Easterwood airport.

In contrast, commercial air traffic in Abilene, Texas, which is roughly comparable in size to College Station, grew substantially over that same period despite experiencing a lower rate of population growths. Similarly, commercial air traffic over this ten-year period also grew sharply in the college town of Manhattan, Kansas, which is smaller than either College Station or Abilene. It may be worthwhile to invest more time and effort in trying to understand the reasons for these very different patterns of change in what appear to be similarly situated airports and to derive any lessons that can be learned from their experiences. For example, growth in commercial air traffic in Manhattan, Kansas, appears to have resulted at least partially because of subsidies paid to a carrier to increase the frequency and number of destinations of the flights that it offered. This subsidy acted as a way to entice the airline to continue flying into the airport even though the flight might have vacant seats.¹⁰⁷

Similar to the grants supporting the Manhattan Regional Airport, there are several ways regional airports may entice airlines to continue servicing their airport. The first option is, The Essential Air Service program (EAS) a subsidy created in support of smaller airports in communities that are more than 70 miles from a major hub airport, capped at \$200 per passenger.¹⁰⁸ The second option is a subsidy raised by the city/region to offer an airline a minimum revenue guarantee. This minimum revenue guarantee offers airlines an incentive to operate at smaller airports, meaning the city will pay for a predetermined percentage of the vacant seats since the city knows not every flight will be full due to the size of the airport. Manhattan, Kansas saw substantial growth through the revenue guarantee, with some success. Passenger enplanements at MHK more than quadrupled from fewer than 12,000 in 2008 to nearly 55,000 in 2011.¹⁰⁹ Over the two year life of the air service agreement. A third option can be actualized through federal grants that are offered by agencies such as, The FAA, or the U.S. Department of

¹⁰⁷ Palmer, Lauren. "Air Service Revenue Guarantee Escrow Agreement." *City of Manhattan Kansas*. City Commission Agenda Memo, 18 Dec. 2012. Web. 20 Apr. 2017. <http://www.cityofmnhk.com/DocumentCenter/Home/View/12494>

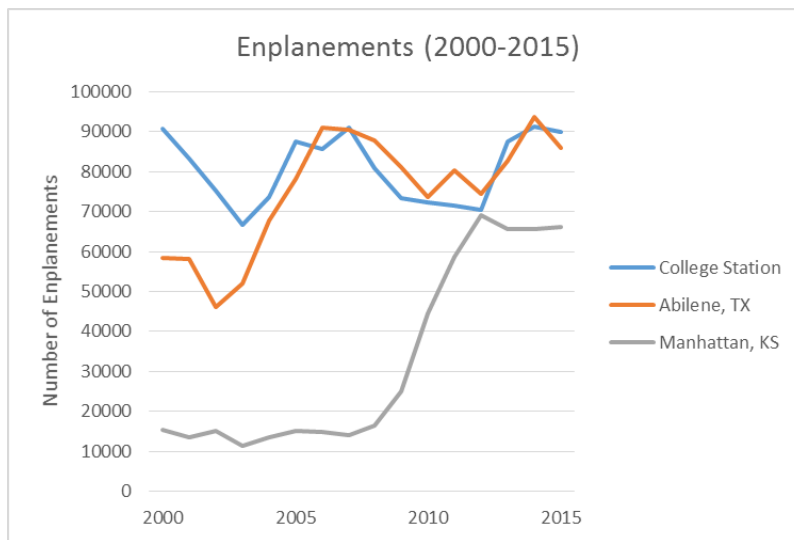
¹⁰⁸ Boehm, Eric. "Trump Budget Ends Subsidies for Rural Airports, Promising \$175 Million in Savings." *Trump Budget Ends Subsidies for Rural Airports, Promising \$175 Million in Savings*. Reasons, 16 Mar. 2017. Web. 29 Apr. 2017. <http://reason.com/blog/2017/03/16/trump-budget-ends-subsidies-for-rural-ai#comment>

¹⁰⁹ Palmer, Lauren. "Air Service Revenue Guarantee Escrow Agreement." *City of Manhattan Kansas*. City Commission Agenda Memo, 18 Dec. 2012. Web. 20 Apr. 2017. <http://www.cityofmnhk.com/DocumentCenter/Home/View/12494>

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Transportation among others. Within the U.S. Department of Transportation's Small Community Air Service Development Program Easterwood received a grant of \$475,000 contingent on Delta Arline's connecting College Station to Atlanta.¹¹⁰ This proposal ended up falling through, yet Easterwood Airport is continuing on the renovations to continue attracting business.

Figure 12. Number of Enplanements Easterwood & Other Regional¹¹¹



Options for Consideration

Policy Option I: Maintain the Status Quo, plus.

In this scenario, business continues more or less as usual, with investments to modernize and improve. Currently, considerable investments are being made in Easterwood to improve the waiting room, amenities, café, parking, and the airport website, among other things. These investments are key to improve Easterwood's competitiveness among other regional airports, and to bring back or attract new clientele. Easterwood's Fixed Base Operator side (Astin) also needs to be maintained and brought up to competitive standards to keep attracting and maintaining growth that the city expects to see in coming years in regards to private and charter planes flying into College Station. Indeed, if commercial service

¹¹⁰ Peshak, Sam. "Easterwood Airport Bracing for Major Upgrades in 2016." The Eagle. N.p., 31 Dec. 2015. Web. 20 Apr. 2017. http://www.theeagle.com/news/local/easterwood-airport-bracing-for-major-upgrades-in/article_9aba1c46-06f3-5397-a09a-735268e0b6d5.html

¹¹¹ Ibid

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at Easterwood falters or disappears, the result may be an influx of private aviation coming into the City. College Station currently spends \$102,690 to advertise Easterwood Airport, but the City may soon want to consider whether it warrants making greater investments of financial resources to promote Easterwood Airport's viability, or use those funds and resources to create a shuttle system from Easterwood to other hubs such as Houston and Austin.¹¹²

Policy Option II: Possible Private, City, or Airline Shuttle System

Regardless of the eventual fate of commercial air service at Easterwood Airport, the City of College Station might consider encouraging or even operating charter bus systems operating out of Easterwood. The existing private transporter Ground Shuttle already offers ten round-trips daily to Bush Intercontinental airport and four to Hobby airport throughout the day and seems to be the main rival (or supplement) to the Easterwood Airport with decreasing flight availability. At present, they transport an estimated number of approximately 30,000 people a year to and from College Station to these other airports.¹¹³ The City might wish to consider the benefits and costs of several options in this regard. One option would be to simply depend on private enterprise to provide ground transportation between the City and hub airports. A second option would be to provide direct public transportation by bus between Easterwood airport and the Houston airports, as is done from the Denver International Airport to various locations in the Denver-Boulder metropolitan area.¹¹⁴

If Easterwood Airport transformed into a transport center in which local residents began their journey at this facility rather than driving to a hub airport, then revenue from parking and other auxiliary services would be retained in the community. A third option might be to transform the terminal into a remote check-in facility operated either by the airlines such as in, Beaumont Jack Brooks Regional Airport To Houston Intercontinental Airport by United Express bus service¹¹⁵ (United Airlines) or (as is done in many European countries) or by private enterprise (as is done in Las Vegas, Nevada). After checking in

¹¹² "2016-2017 Approved Annual Budget." *City of College Station*. N.p., Oct. 2016. Web. 20 Apr. 2017.

¹¹³ The estimate is derived from the number of daily scheduled trips (10) to George Bush Intercontinental Airport and Houston Hobby Airport, assuming ridership of eight on each trip; i.e., $10 \times 365 \times 8 = 29,200$.

¹¹⁴ "Parking, Transit." Public Bus | Denver International Airport. Fly Denver, n.d. Web. 02 May 2017.

¹¹⁵ "Ground Transportation." *IAH Shuttles and Buses / Houston Airport System*. Fly2Houston, n.d. Web. 02 May 2017.
<http://www.fly2houston.com/iah/shuttles-buses/>

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luggage and being issued boarding passes, passengers would then be transported by ground to Bush Intercontinental or other hub airports.

Policy Option III: Promote Development of Aggieland Expressway:

In any scenario in which flights to Easterwood are reduced or eliminated, College Station will benefit from expanded and more direct routes to city centers, most importantly, Houston. The State Highway 249 Extension, commonly referred to as the "Aggieland Expressway", would create a more direct route not only to Houston, but also to transportation hubs such as George Bush Intercontinental Airport. Aggieland Expressway has made significant progress, and is near construction phase. The City might consider taking whatever steps are at its disposal to promote the expressway as an easier route for alumni, students and faculty to easier travel from a major hub to College Station for university and city affairs, including sporting events, which play a major role in the local economy.

Policy Option IV: Attract a Low Cost Airline that Operating at Easterwood:

Even if the major airlines withdraw or substantially cutback from the College Station market, this would not necessarily mean the end to scheduled air service to major hubs. A recent study concluded that low-cost air carrier service that operated from regional airports in Texas to Houston or Dallas "can offer an economical airfare and a comfortable flight in a new technologically advanced turboprop aircraft which will encourage people to choose air travel instead of travelling by road to hub airport."¹¹⁶ This form of travel would be inexpensive and serve primarily as a low-cost basic form of transportation from point A to B. Under this model, Easterwood Airport and similar airports would continue to play their existing roles as regional airports but do so in a way that would not require tight integration with the major airline carriers' business models.

¹¹⁶ Rahman, Ziaur, M. E., Stephen P. Mattingly, PH. D, and Saty D. Satyamurti, PH. D. "Least Cost Solution for "Short-Haul" Flights from Regional Airports to Dallas/Fort Worth International Airport (DFW)." *Least Cost Solution for "Short-Haul" Flights from Regional Airports to Dallas/Fort Worth International Airport (DFW) | T&DI Congress 2014*. University of Texas at Arlington, 2014. Web. 02 May 2017. <http://ascelibrary.org/doi/pdf/10.1061/9780784413586.080>

Part III



Part 3 analyzes various factors regarding emergency services in College Station, while using comparative cities to provide further insight. Public safety is of the utmost importance to the present and future of the city. The necessary expansion to the emergency services staff can be costly, and as a result, all possible ways to appease the needs of the city should be considered. The College Station Police Department has historically provided services that result in College Station being viewed as one of the safest cities in the state of Texas. However, as the population, and specifically college student population continues to grow, the number of sexual assaults

“DISPROPORTIONATE GROWTH
OF AGENCY VS. CITY
POPULATION/GEOGRAPHICAL
SIZE/INFRASTRUCTURE/FUNDING”
– COLLEGE STATION 2016/17 BUDGET

and violent
crimes are rising
as well.

The following
section
examines
private-public

partnerships as well as innovative ways to provide the necessary funding for the city-requested employee increase. As the city of College Station grows to over 200,000 residents by the year 2030, an increasing importance will be placed on emergency services to continue to provide a safe environment for all constituents.

The College Station Fire Department has experienced similar understaffing issues, due to an increase in emergency calls which directly correlates to the recent population growth. Due to the projected population growth, the city will need to analyze all options for increasing staff employment opportunities in the future. The upcoming section makes recommendations in order to continue to improve the already excellent fire and EMS operations within the city, so that citizens now and in the future, will not be concerned about their safety.

ROADMAP

College Station Police

- Background
- Benchmark City Comparisons
- Policy Options
- Conclusion

College Station Fire

- Background
- Recruitment
- Benchmark City Comparisons
- Policy Options

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College Station Law Enforcement

Background

The City of College Station, Texas is currently experiencing rapid population growth, at roughly 4% per year, making it the 18th fastest growing city in the United States.¹¹⁷ Because of this increase in number of citizens, funding the growth of the city’s emergency services units is a pressing concern. While there is most likely a lag in city reporting regarding the ratio of police officers to population, College Station is still trailing several comparable cities in this measure and is well below the national average in nearly every violent crime statistic.¹¹⁸ Historically, College Station has been identified as one of the safest cities in the state of Texas, with it being ranked 11th in the state in 2016 in a review done by the Darrow Law Firm.¹¹⁹ The chart below displays crime in Texas cities with comparable populations in 2012¹²⁰

Table 4: Crime by Texas City

City	Population	Violent Crime	Murder and nonnegligent manslaughter	Rape (revised definitio	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson
TEXAS	24,422,501	42.8	0.5	7.8	12.8	25	292.5	55.7	210.5	26.2	-
Odessa	118,606	103.5	0.8	6.1	13.6	83	382.9	72.7	269.1	41.1	2.6
Beaumont	117,635	92.5	1.4	7.8	25.3	58	411.4	110.1	281.2	20.1	3.3
Round Rock	115,955	13.2	0.1	3.4	2.9	6.8	192.3	17.7	170.7	4	0.3
Richardson	111,008	15	0.1	2	6.3	6.7	200.4	33.3	153.7	13.4	0.1
Pearland	106,850	15.3	0.2	4.4	4.2	6.6	204	29.5	163.8	10.8	0.2
College Station	105,855	22.1	0.2	5.9	3.6	12.5	231.9	37.1	185.5	9.3	0.2
Wichita Falls	105,186	38.6	0.1	8.1	10.4	20.1	363.3	85.5	261.5	16.3	0.1
Lewisville	104,741	23.2	0.2	4	5.3	13.7	228.2	37.8	169.1	21.3	0.7
Tyler	102,481	38.5	0.5	5.3	6.4	26.3	398.7	65.7	313.2	19.8	0.1
San Angelo	100,356	35.3	0.3	5.6	3	26.4	407.4	73.4	309	25	1.9
League City	97,172	9.1	0.1	2.6	2.6	3.8	181.8	24.7	149.6	7.5	1
Bryan	82,050	44.2	0.6	6.7	7.8	29.1	313.6	53.7	245	14.9	2.3

However, while the rate of violent crime in College Station is generally comparatively low, there has been a clear correlation between the population growth and the uptick of sexual assaults. If they city chose to employ a greater number of officers, it would be potentially beneficial to have the officers focused in areas and at hours of the day where rapes most frequently occur. Recently, the rate of rapes is

¹¹⁷ Knight, Abby. "Rapid population growth impacts College Station infrastructure." *KBTX-TV*. N.p., 20 May 2016. Web

¹¹⁸ "College Station, TX Crime Rates." *Neighborhood Scout*. Location, Inc, n.d. Web.

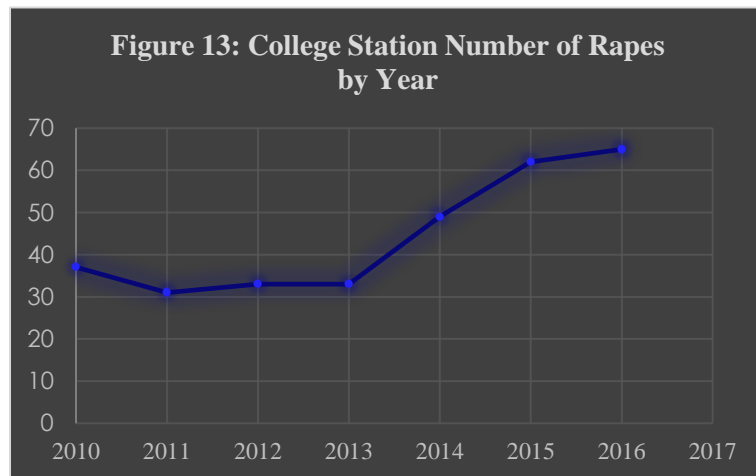
¹¹⁹ Knight, Abby. "Rapid population growth impacts College Station infrastructure." *KBTX-TV*. N.p., 20 May 2016. Web

¹²⁰ "Crime in the United States 2012." *FBI: UCR*. US Department of Justice, n.d. Web.

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increasing at a faster rate than the population, with the city experiencing a significant uptick in the past three years.

As the number of college students within the town, particularly at Texas A&M University has increased, so has the number of rapes within College Station: “Women ages 18-24 who are college students are 3

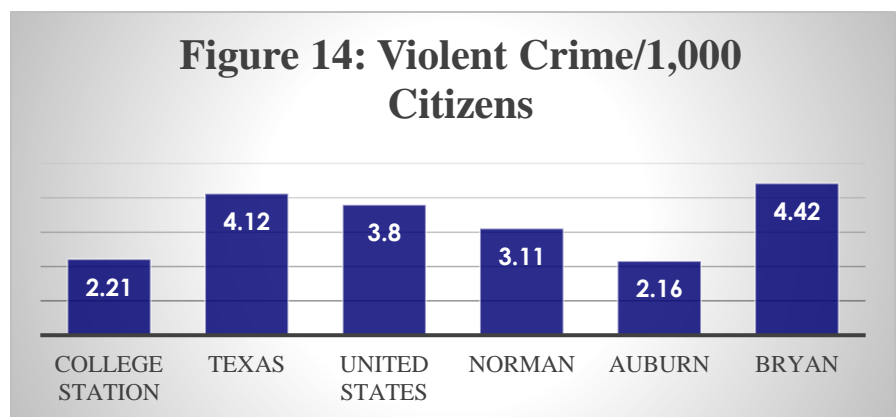


times more likely than women in general to experience sexual violence. Females of the same age who are not enrolled in college are 4 times more likely.”¹²¹ The increase in rapes could potentially have a negative impact on the city in several significant areas, including: economically, socially, and politically.

Benchmark City Comparison

Auburn, Alabama

The analysis compares and contrasts the College Station Police Department with those of Auburn, Alabama and Norman, Oklahoma, two cities with demographically similar populations that house major universities. During the 2016 calendar year, College Station experienced a reported 65 rapes, which is .6 per 1,000 residents, and more than one per week, well above the United States national average of .39 per 1,000 residents. This statistic also does not include rapes reported to Texas A&M University Campus Police, or those crimes committed on campus. In nearby Bryan, Texas, a city above the national and state median crime rate, the rape rate



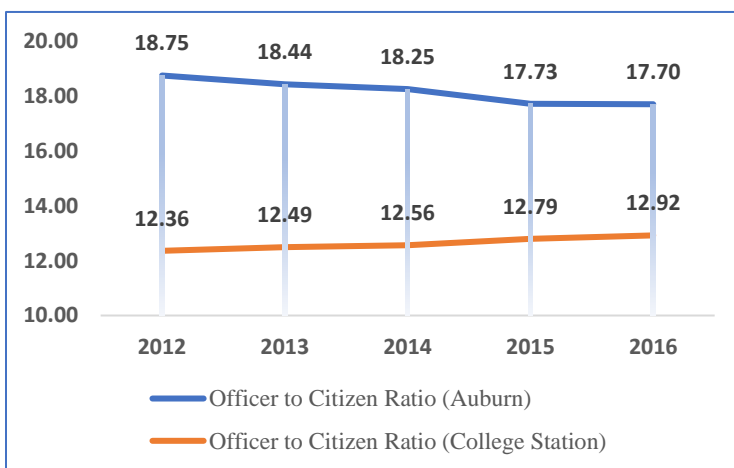
¹²¹ "Campus Sexual Violence: Statistics." *Rainn.org*. Rainn, n.d. Web.

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is .69 per 1,000 residents. In the comparable college town of Auburn, Alabama, which is home to Auburn University and its nearly 30,000 students, the city reported only eight rapes during the 2016 calendar year, which was .13 per 1,000 residents. Regarding other crimes, and specifically violent crimes, College Station is fairing comparatively quite well, when compared to similar cities as well as on the national level. It is possible that the Bryan/College Station community has a better reporting rate, but from a bird’s eye view the differences are concerning for both communities. Either Auburn has an underreporting issue, or College Station has a problem with rape that has only grown with increases to the population.

The City of College Station currently employs 142 full-time police officers for its roughly 110,000 residents, equaling a ratio of roughly 12.9 officers per 10,000 citizens, just above the recommended minimum ratio of 12.4 by The International Association of City/County Managers. The College Station Police Department clearly feels that employee expansion is necessary as it was stated in the 2016/17 city budget: “Issue: Disproportionate growth of agency vs. city population/geographical size/infrastructure/funding.”¹²² In the comparable city of Auburn, Alabama, their city government currently employs 112 full-time officers for their population of just over 63,000, representing a ratio of roughly 18.06 officers per 10,000 citizens. The following graph depicts the differences in officer to population ratio between the two cities for recent years:

Figure 15: Comparative Officer to Citizen Ratio



In a similar vein, most likely due to the rise in student population at Texas A&M University, College Station is experiencing a greater number of property thefts than the national average, 22.36 per 1,000 residents compared to 17.75 per 1,000 residents at the national level. Conversely, Auburn reported a theft rate of 20.48 per 1,000 residents during the 2016 year. While Auburn is a

¹²² "Annual Budget." *CSTX.org*. City of College Station, n.d. Web

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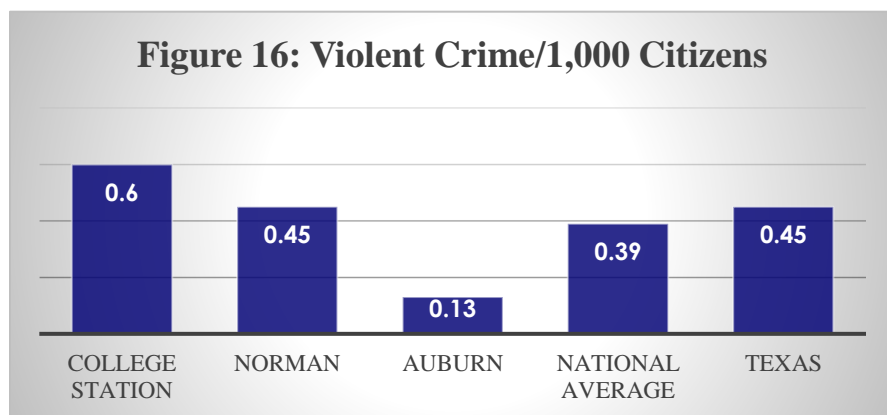
single college town, it is comparable in its total population size as well as its demographic and socioeconomic makeup and is a solid benchmark city for College Station to analyze and possibly emulate. The city of Auburn was also chosen as a comparison city, due to the 40% population growth that the city has experienced since 2000, according to the Census, which is similar to what is projected for College Station in the near future. Auburn is currently the fastest growing city in the state of Alabama and has grown by more than 10,000 residents in the past five years, and is expected to become the seventh largest city in the state by 2020.¹²³

Norman, Oklahoma

In order to provide a thorough analysis of the current safety climate in College Station, it is useful to provide more than one comparison city. Norman, Oklahoma, home to the University of Oklahoma, is another similar city, in its socioeconomic and demographic makeup. In addition, Norman is experiencing a parallel rapid population growth in a college town setting. The current population in Norman is roughly 120,000, having experienced a 9% increase since 2010. The City of Norman currently employs 170 full-time police officers, with the ability and funding to employ a maximum of 182. The officer-to-population ratio is roughly 14.17 officers/10,000 citizens, well above the ratio for College Station.

The City has added more officers to the force in parallel with their citizen population growth, as their full-time officer staff has grown by 14 officers since 2012. Dating back to 2008, the city of Norman proactively looked for ways to fund additional police officers in order to respond to their rapid population growth: “In May

of 2008, Norman residents approved PSST (Public Safety Sales Tax), which provided for a temporary sales tax increase of ½ of 1% on retail sales from October of 2008 to September of



¹²³ Stephens, Challen. "Census: Huntsville and Auburn growing rapidly, Montgomery shrinking." *AL.com*. N.p., 19 May 2016. Web.



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2015. In part, Norman’s PSST funded the addition of 41 police officers and additional equipment needed to reinstate the Community Oriented Policing (COP) Program.”¹²⁴ The sales tax increase passed by a margin of 8,301 to 4,307. In 2014, there were 54 rapes committed in Norman, or a ratio of .45 per 1,000 residents, below the ratio of College Station of .6 per 1,000 residents, and somewhat above the national average of .39 per 1,000 residents.

Policy Options:

A crucial piece of effective local government leadership is the ability to forecast and prepare for the future and public safety, something that should be a priority for the College Station city government. While Norman and Auburn are only two cities, there is clearly a correlation between the number of officers employed and the number of rapes committed. Due to the rapid population growth currently being experienced in College Station, along with the projected future population growth for the city, the city will surely need to increase their officer staff size to provide high levels of safety for their constituents. While increasing the number of officers will require an increase in the public safety budget, the resulting possible economic outcomes, such as: increasing the Texas A&M University student population, attracting a wider array of new businesses, and enticing young adults to remain residents past graduation, could outweigh the costs of the additional officers.

In the most recent city fiscal budget, the College Station Police Department requested that the department receive an additional seven full-time police officers, in part due to an increase in stress caused by workload exceeding available resources. In the most recent city budget, the department also felt that the city was growing at a disproportionate rate when compared with the department, which has also hampered the officers’ ability to interact with their citizens on a consistent basis. There are several ways to fund the additional officers requested and to begin the preparation process of funding a staff that will grow at a comparable rate to the population of the city.

¹²⁴ "Public Safety Sales Tax." *Public Safety Sales Tax / Norman Police*. N.p., n.d. Web. 06 Apr. 2017.



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Policy Option I: “College Station Crime Stoppers”

The local government of College Station has the distinct advantage of being situated in a pro-public service city. The city could attempt to capitalize on this support and attempt to seek private funding for necessities within the College Station Police Department. The “College Station Crime Stoppers” program would be a city-run endeavor, with the goal of fundraising to supply the department with necessary equipment and updated technology. In nearby Houston, Texas, their local government has capitalized on their similarly pro-service population, benefitting from the Houston Police Foundation.

The Houston Police Foundation classifies itself as, “A nonprofit corporation formed by local business leaders to support projects of the Houston Police Department. Donations made by individuals and companies fund special programs, officer safety, training, equipment and new technology – none of which would be feasible under the City budget.”¹²⁵ If the City of College Station were to adopt a similar model, the disbursement of funds towards the above-mentioned projects, would enable the city to have sufficient capital to account for the increase in the necessary officers now and in the near future. By receiving private funding, the city’s budget and tax rate would not increase, while still being able to employ a larger number of police officers that will help to ensure that the City can maintain an acceptable officer to citizen ratio throughout anticipated future population growth.

Corpus Christi has a similar program to the one in Houston with The Corpus Christi Police Foundation, another non-profit organization. In a short time, the Corpus Christi Police Foundation has made great strides to increase funding for necessary upgrades. For example, in the first year of operation in 2010-11, the organization was able to raise \$269,000 to support the department. The foundation has attained a wide-ranging audience, resulting in several brand name sponsors: H-E-B, Mercedes Benz, Nissan, Valero, and more. In January 2017, the foundation raised \$17,000 in order to provide a new K-9 dog for their department.¹²⁶ In November 2016, the foundation received a \$20,000 donation from H-E-B to support its annual “Corpus Christi Police Department Breakfast” event, which raised over \$70,000 in 2015.¹²⁷ Using these two foundations as a template, “College Station Crime Stoppers”, might have

¹²⁵ *Houston Police Foundation*. N.p., n.d. Web. 06 Apr. 2017.

¹²⁶ Ruiz, Anayeli. “CCPD will be getting a new K-9, thanks to a donation.” *Home - KRISTV.com*. N.p., 04 Jan. 2017. Web. 06 Apr. 2017.

¹²⁷ *Ibid*



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annual and lifetime memberships, which would fund projects that contribute to constant improvement of the College Station Police Department.¹²⁸

The foundation might also consider holding events throughout the year to raise awareness regarding the budgetary issues facing the department, while gaining support financially. It is reasonable to think that the city's police department would support this program as they stated in the 2016-17 city budget that a possible plan of action to abate the necessary growth of the department would be to, "Secure additional resources to respond to growth and satisfy staffing requirements."¹²⁹ The 2016-17 budget claims that a portion of the citywide tax increase will go to funding the five additional positions requested; public safety will not improve directly from growth in revenue as a function of population growth. If the city needs creative ways to bring in revenues, a non-profit foundation might be an option that could inject much-needed funds.

Policy Option II: Corps to Cops

The Corps to Cops program will be focused on attracting current students at Texas A&M University, that are interested in a law enforcement career outside of the college campus setting. However, this program will not be solely for members of the Texas A&M Corps of Cadets, but instead any and all students who are interested in a career in public safety. Corps to Cops could provide the department with the additional officers they are seeking, while not incurring a dramatic budgetary increase. While these individuals will seek this opportunity to satisfy their public service motivation, the city will also provide tuition assistance for those in need, in return for their part-time employment. There are currently several university police departments that employ a student apprenticeship program; however, Corps to Cops would aim to attract individuals who are eager to make a positive difference at the citywide level.

This program could potentially alleviate some of the training and retention costs currently facing the city; according to the Assistant Chief of Police, Brandy Norris, it costs the city \$66,703 to train each officer, which includes all recruiting efforts, training, equipment, salary and benefits during the time that the recruit is in the academy and field training. By offering tuition supplements rather than salary, the

¹²⁸ Ibid

¹²⁹ "Annual Budget." *CSTX.org*. City of College Station, n.d. Web



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Police Department could have potential cost savings. Corps to Cops would also have the ability to attract individuals who have a passion and loyalty to the city, thus potentially reducing the officer attrition rate. By instituting this program, College Station Police Department, would have the ability to corner a new market, in which their department could attract a highly educated workforce from an elite university, while serving as a developmental program for their future full-time workforce. The program would have a positive fiscal impact on the public safety budget by reducing recruiting and training expenses in the future, while possibly improving retention by their force having a built-in affiliation to the city of College Station benefiting from the population growth and student body expansion.

Policy Option III: RealConsent Program

The RealConsent Program a program designed to reduce sexual violence perpetration behaviors among college men using a bystander-based model that draws on social cognitive and social norms theory is a policy option that could improve relations with the community, while also possibly impacting the high number of rape cases in the City. The goals of this program are to prevent sexually violent behavior toward women by:

- Increasing prosocial intervening behaviors, including knowledge of and skills for safely intervening
- Correcting misperceptions in normative beliefs about sex and rape
- Changing harmful attitudes toward rape
- Increasing knowledge of the elements of sexual consent
- Affecting masculine gender roles

RealConsent consists of six 30-minute web-based, interactive modules that include didactic activities and episodes of a serial drama to model sexual communication, consent, and positive bystander behaviors. A study found that the program was effective in decreasing sexual violence perpetration and increasing positive bystander behavior at 6-month follow-up in a sample of college-aged men.¹³⁰ At the conclusion of the RealConsent program, administered to 1406 college male students, “The odds for perpetrating among RealConsent participants were 73% lower than participants in the comparison

¹³⁰ "Violence Prevention." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 07 June 2016. Web. 06 Apr. 2017.



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condition.”¹³¹ The city of College Station could possibly seek a partnership with local universities and high schools to ensure that this program is completed, and actively engage in curbing the issue before it can spiral.

Policy Option IV: Incident heat map/selective location officer dispersing

The city of College Station and the police department could consider creating a heat index map based on past sexual assault incidents. Through this map, the department would be able to quantitatively analyze trends regarding where these crimes are most likely to occur and at what time. The map would also reveal any fluctuations in trends through a lengthy duration of time. Because of this map, leaders within the police force could more readily prevent future assaults by dispersing officers at quantitatively proven times, days, and locations that have been shown to most often produce sexual assaults. To increase transparency along with improving self-awareness and protection within the city, the department could consider making this map available to the public, which could possibly increase preventative measures for future victims.

Conclusion:

While College Station faces different challenges due to the influx of students and new residents, public safety should not be sacrificed. Implementing some of the policy options could alleviate budget concerns while addressing issues that are a result of demographic shifts and population changes that the City might not always be in control of. Finally, while public safety in regards to police presence is an ever-present issue, another department seeing similar strains on resources and services is the College Station Fire and Emergency Services.

¹³¹ Salazar LF, Vivolo-Kantor A, Hardin J, Berkowitz A. A web-based sexual violence bystander intervention for male college students: randomized controlled trial. *Journal of Medical Internet Research*. 2014; 16(9): e203.

EMERGENCY SERVICES

College Station Fire Department

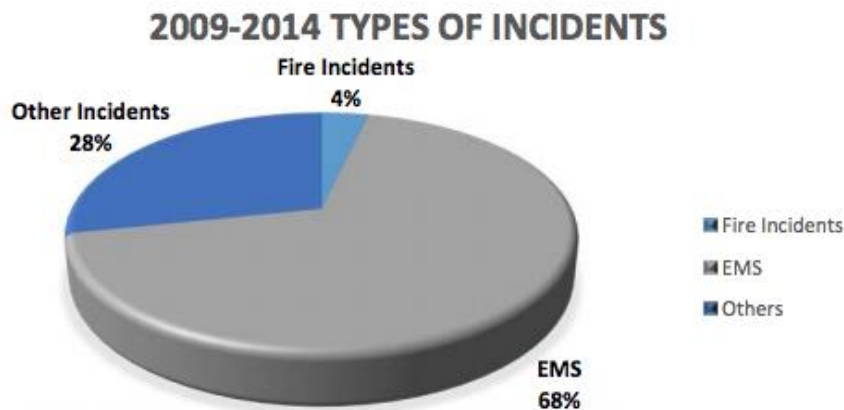
Background

The College Station Fire Department, formally established in 1969, has evolved from a volunteer fire department at Texas A&M University to a department employing over 150 men and women, operating out of six fire stations. College Station Fire Department is responsible for approximately 55 square miles of city limits. As a sister city, the department has a mutual aid agreement to support the City of Bryan, as well as with volunteer departments throughout Brazos County. Rapid growth in the City over the past few decades has resulted in equally rapid growth in the number of calls and unit responses for the College Station Fire Department.

The rapid growth in number of calls has included emergency medical services, with structure fires on the decline. From 2009 to 2014, approximately 68% of the calls received by College Station Fire Department were emergency medical calls. While fire suppression calls only comprised 5% of the calls

received.¹³² The growth of emergency medical calls is exacerbated due to similar population growth in other Brazos County communities, which rely on College Station Fire Department for mutual aid as well. In the College Station Fire Department Strategic Business Plan, attracting new recruits and keeping available positions filled were two top department goals for 2016-2018. The Department also concluded that more support staff are needed for training, prevention, public education, and code enforcement. Additional recruitment efforts will be needed in order to meet the increased need for staff. This section

Figure 17: CSFD Types of Incidents



¹³² City of College Station Fire Department. College Station Fire Department Standards of Cover. City of College Station, 2015. Web. <<http://cstx.gov/Modules/ShowDocument.aspx?documentid=23084>>.



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will analyze issues affecting these two policy goals, and ways the City of College Station can make strides to improving these policy issues.

Recruitment

College Station Fire Department listed recruitment as a top department goal for the upcoming fiscal years. Because the City is experiencing population growth, College Station Fire Department must also expand in order to protect life and property in times of emergency. In the College Station Fire Department strategic business plan, there is an internal stakeholder comment section, where personnel may voice their outlook on the department. In this section, internal stakeholders have stated there has been a loss of experience within the last four to five years.¹³³

The loss of experience presents an issue for a fire department in a city experiencing accelerated population growth. The need for personnel expansion is not limited to just firefighters and paramedics, but encompasses other types of positions with the fire administration department. One issue that stakeholders pointed out as an area in need of improvement was in their grant application processes for increased funding resources outside of traditional city revenues. Internal stakeholders within College Station Fire Department discussed creating a full-time grant writer position, in order to be in a better position to take advantage of grants that are offered to fire departments. College Station Fire Department will need to continue to expand its force, as the population of the city continues to grow. In addition to the grant management position, the department does not have a specified position in its organizational chart for recruitment. If recruitment is one of the two goals of the Department, then hiring a person, or assigning duties to an existing personnel for recruitment is crucial to attracting and keeping talent in College Station's Fire Department.

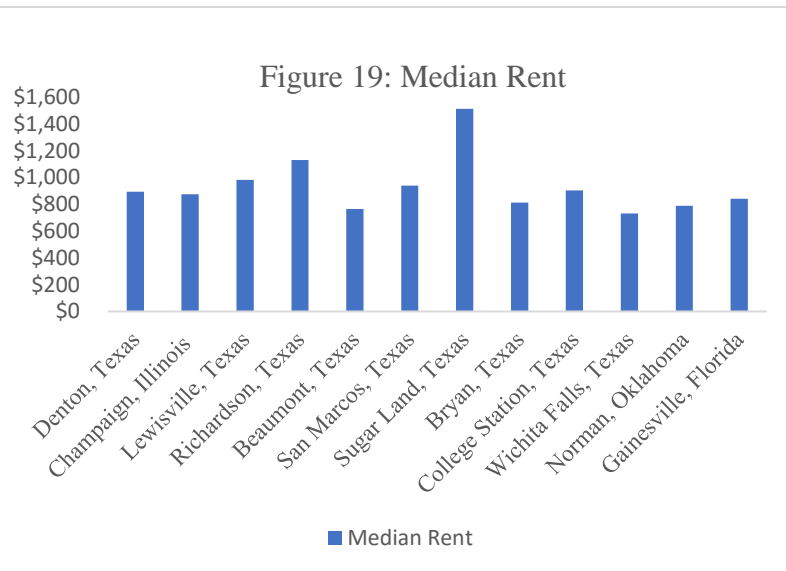
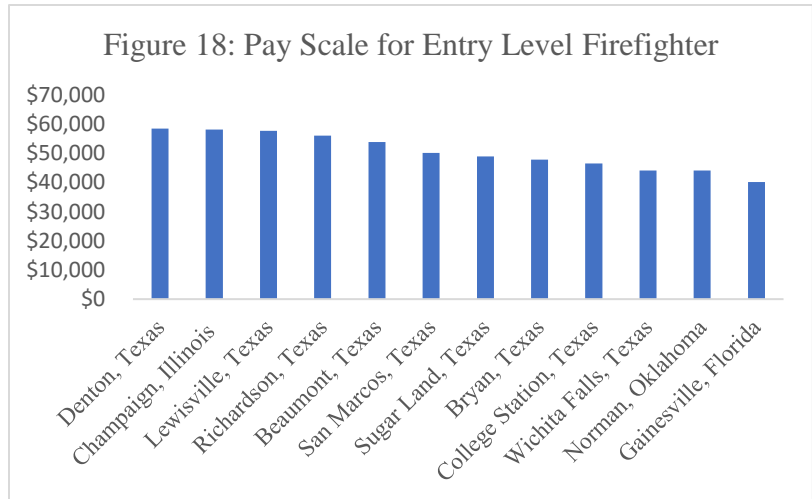
¹³³ City of College Station Fire Department. College Station Fire Department Strategic Business Plan. City of College Station, n.d. Web. <<http://cstx.gov/Modules/ShowDocument.aspx?documentid=23085>>.

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Benchmark City Comparisons:

The cost of living in College Station and its effects of recruiting and retaining fire fighters is a topic of concern, as evidenced by its discussion during the recent elections in November 2016. Mayor Karl Mooney argued that the lack of availability and high cost of housing in College Station poses difficult challenges for emergency

services personnel.¹³⁴ As noted in the Revenues Section of this report, without low-rent seeking options and ever increasing property values, the City potentially loses out on new recruits with little to no savings. Increasing both the base pay and consequent levels of pay would allow the College Station Fire Department to compete with similar cities. The level of pay and affordability of the city are vital aspects of recruiting in fire departments. Tables 18 and 19 show how College Station aligns with Texas cities of roughly comparable size in terms of base firefighter pay, median home value, and gross median rent.



The tables also provide data for three out-of-state benchmark cities, which also are comparable in population and include a major university similar to Texas A&M. When compared to the benchmark cities, the City of College Station falls in the top three cities when comparing median home value, with a value of \$185,800.¹³⁵ However, the College Station Fire Department falls within the bottom four cities, in regards

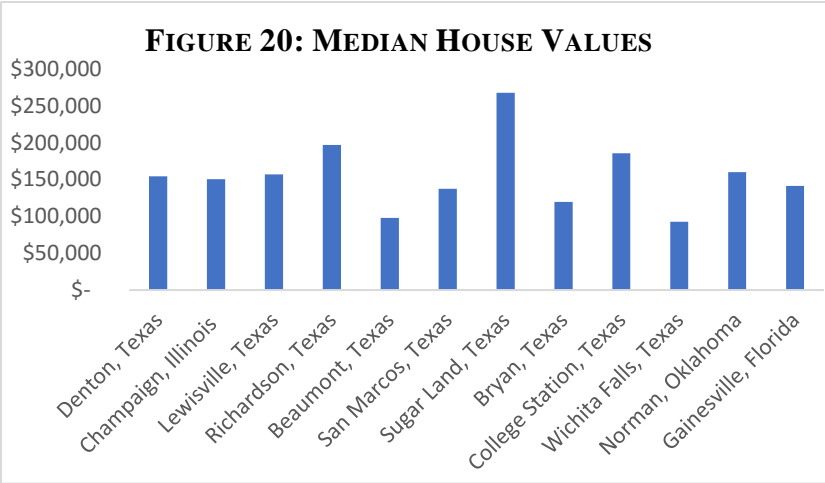
¹³⁴ Clark, Caitlyn . "CS Candidates Share Views on Public Safety." The Eagle. N.p., 27 Oct. 2016. Web. <http://www.theeagle.com/news/local/cs-candidates-share-views-on-public-safety/article_bb25abad-fbfc-5bd8-8496-eb84fe89ab89.html>.

¹³⁵ Data Access and Dissemination Systems (DADS). American Fact Finder. U.S. Census Bureau, 05 Oct. 2010. Web. <<https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>>.

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to base pay for an entry-level firefighter at \$46,592.¹³⁶ In Comparison to the City of Lewisville, whose median home value is \$156,800, College Station’s median household is higher putting them at a disadvantage when attracting recruits. Despite that, the City of Lewisville’s starting salary for an entry-level firefighter is \$57,743.¹³⁷

Firefighters in College Station receive lower salaries and face higher cost-of-living than their colleagues in most benchmark cities. Competitive pay is an important aspect of a fire department, when it comes to recruiting and retention of fire fighters, and something the Fire



Department has greater control over compared to property values.

Policy Option I: Apprenticeship Programs

A potential policy alternative for enhancing recruitment efforts would involve local school districts. Currently, the College Station Fire Department does not have any form of an apprenticeship program. Other cities have had success with such programs, however an example of a successful apprenticeship through the local school systems can be found in the City of Arlington. The Arlington Fire Department has an agreement with Tarrant County Community College, as well as Arlington Independent School District. Arlington’s program trains students in the fire fighting and emergency medical fields, and upon high school graduation, allows the participating students to enter the workforce as a full-time Firefighter/Emergency Medical Technician. Employees of both Arlington Fire Department and Arlington Independent School District oversee the program, coordinating closely with parents on fundraising efforts, in order to ensure every student in the program graduates. On completion of the program, students earn 24 hours of college credit.¹³⁸ These hours are enough to satisfy the requirements for the Texas Commission on Fire Protection, as well as the National Registry for EMT Certification.

¹³⁶ City of College Station Fire Department. City of College Station Fire Department Pay Scale. City of College Station, n.d. Web.
¹³⁸ "AISD Fire Academy." Arlington Fire Department. City of Arlington, n.d. Web. <<http://www.arlington-tx.gov/fire/programs-initiative/aisd-fire-academy/>>.



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These qualifications allow students to obtain a fire fighting position anywhere in the United States. The program has proved successful enough that the Arlington Independent School District uses the same guidelines as the fire-training program for all of their dual credit programs.

Similarly, the City of Longview boasts a successful apprenticeship program through their fire department. The Longview Fire Department Apprenticeship Program hires non-certified or partially certified applicants and trains these individuals for a full-time career with LFD. The apprentices receive a full-time salary and benefits package throughout the program. The apprenticeship is designed to be completed in 24 months, which includes both education and the internship. However, if an applicant possesses the TCFP Basic Structural Firefighter and the Texas DSHS Emergency Medical Technician Basic certifications, the apprenticeship may be completed in 12 months. The program has received funding through a Department of Labor grant, something that a grant coordinator might be able to help CSFD with if a position were created. The Longview Fire Department holds a hiring cycle every year for the apprentice program drawing as many as 100-130 applications. From the applications, Longview only selects a few, making this program extremely competitive at times only taking the top six applicants.

Policy Option II: Grants and Private Sources of Funding

Various grants and private funding allow municipal fire departments to fund extra salaries, purchase a new fire engine, or equipment such as radios. Federal grants from the Federal Emergency Management Agency provide funding for fire departments to increase or maintain personnel numbers. FEMA's Staffing for Adequate Fire and Emergency Response Grant (SAFER) supports the recruitment and hiring of new firefighters.¹³⁹ The U.S. Department of Housing and Urban Development Good Neighbor Next Door Program provides assistance to public servants for personal housing.¹⁴⁰ This grant allows full time firefighter/emergency medical technicians to purchase a HUD owned home at 50% of the cost of the home.¹⁴¹ Grants also allow departments to expand their recruiting base; such an example can be

¹³⁹Federal Emergency Management Agency. Funding Alternatives for Emergency Medical and Fire Services. U.S. Fire Administration, n.d. Web. <https://www.usfa.fema.gov/downloads/pdf/publications/fa_331.pdf>.



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found in the Longview Fire Department. The successful apprentice program they host is completely funded through a Department of Labor grant.

Private funding provides a unique opportunity for fire departments to extend their budgets, and purchase necessary items. Farmers' Insurance Groups provides an open grant to any fire department located in a state where Farmers Insurance conducts business.¹⁴² The Firehouse Subs Public Safety Foundation provides a grant in order to provide funding for resources to public safety entities.¹⁴³ The Fireman's Fund Insurance Company provides funds for emergency equipment, training programs, and community emergency response programs.¹⁴⁴ However, to take advantage of these opportunities, departments typically hire a full-time grant writer. The City of College Station's Fire Department currently does not have a full time administrative position for private funding opportunities. The College Station Strategic Business Plan internal stakeholder comments section, states that a full-time position to take advantage of grants would be a possibility. An alternative to hiring a full time grant writer would be to hire a third party, in order to conduct the grant writing process on behalf of the College Station Fire Department. FireGrantsHelp.com provides custom grant writing services for fire departments.

Public and private grants are a way for the fire department to extend their budget, in order to meet their specific needs. In general, city budgets provide the vast majority of funding for municipal fire departments. Occasionally, cities must cut budgets, or they simply cannot grow quickly enough to fund department needs. Firefighter/EMS salaries are the principal priority when budgeting for the emergency services department. Sometimes, replacing aging pieces of technology or acquiring extra equipment that is needed is displaced by personnel needs and pushed off to the later fiscal years. This is an area where outside sources of funding can play a crucial role.

Policy Option III: Restructure Policy Regarding Emergency Calls

Fire departments across the United States are experiencing the continuous rise of medical calls and responses, while at the same time experiencing a decline for structure fires. According to a

¹⁴²Federal Emergency Management Agency. Funding Alternatives for Emergency Medical and Fire Services. U.S. Fire Administration, n.d. Web. <https://www.usfa.fema.gov/downloads/pdf/publications/fa_331.pdf>.



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Governing.com article, across the 30,000 fire departments in the United States, there were 10.8 million emergency calls in 1980.¹⁴⁵ Approximately 3 million of those were fires. In 2013, there were 31.6 million emergency calls. Out of that 31.6 million, 1.24 million were fire calls.¹⁴⁶ In the City of College Station from 2009-2014, emergency medical calls made up 68% of the total calls received by the department.¹⁴⁷

The growth of emergency medical calls presents an opportunity for the fire department to restructure itself and its protocols. Current protocol allows firefighters extra time to fully suit up in bunker gear, in case they must respond to a fire call while out in the field. Typically, firefighters hold an emergency medical technician certification, rather than being a fully certified paramedic. This partial certification limits the types of medical attention firefighters can provide when responding to an emergency medical call. Current protocol does not appear to fit well with the current trend of declining fire responses. Finding the balance between the number of firefighters and full time paramedics appears to be a key issue facing fire departments in the near future.

Policy Option IV: Rapid Response Vehicles and Dual Certifications

In response to the increasing incidence of emergency medical service calls relative to fire suppression calls, College Station Fire Department might consider the option of purchasing rapid response vehicles (RRVs). These RRVs are vehicles such as a Ford F-350, GMC Yukon, or a Chevrolet Suburban. The vehicles can be structured and modified in a manner that resembles an ambulance. Some vehicles are modified in order to fit a spine board in the back, along with various medical supplies. The Portland Fire Department purchased four rapid response vehicles, due to the decrease in fire calls throughout the city.¹⁴⁸ These RRVs were an affordable and effective alternative, allowing personnel to respond more effectively to calls that primarily involved emergency medical treatment. Memphis Fire Department purchased eight Ford F-350's with enclosed beds housing a spine board and necessary medical gear for medical emergencies in the field.

¹⁴⁵ Keisling, Phil. "Why We Need to Take the 'Fire' Out of 'Fire Department'" Governing . N.p., 1 July 2015. Web. <<http://www.governing.com/columns/smart-mgmt/col-fire-departments-rethink-delivery-emergency-medical-services.html>>.

¹⁴⁷ City of College Station Fire Department. College Station Fire Department Standards of Cover. City of College Station, 2015. Web. <<http://cstx.gov/Modules/ShowDocument.aspx?documentid=23084>>.

¹⁴⁸ Petrillo, Alan. "Departments Measure Effectiveness of Rapid Response Vehicle Programs." Fire Apparatus & Emergency Equipment. N.p., 5 May 2014. Web. <<http://www.fireapparatusmagazine.com/articles/print/volume-19/issue-5/features/departments-measure-effectiveness-of-rapid-response-vehicle-programs.html>>.

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Firefighters expressed concerns about situations in which they responded in RRVs to a medical call, and then while deployed they received a fire emergency call which required a fire truck. The department

decided to give the firefighters the ability to choose which vehicle they would use to respond to medical calls. However, the Deputy Director of Memphis Fire Services stated that protocol would not allow the men to respond to a fire emergency while on a medical call. They must continue their duties at the medical call until that is completed. Rapid



CITY OF MEMPHIS RAPID RESPONSE VEHICLE

response vehicles appear to be a cost effective manner to modify a fire department's vehicle stock in order to better address the ever-changing demands placed on these services, while not overtaxing ladder trucks that are more expensive to operate.

The City may wish to consider other policy alternatives that reflect the changing balance of functions performed by fire departments. A more radical change would involve restructuring personnel within the department, giving greater focus on emergency medical services. If a city's emergency calls are increasingly dominated by medical calls and saves, such changes seem worthy of serious consideration. The hiring of dual certified personnel with both fire fighter certification and fully certified paramedic status would represent a possible step in this direction. Allowing firefighters to respond in crews of two per medical response may also be an efficient manner of allocating members of the department. Typically, departments seek four fire fighters to respond to a structure fire. This requirement has prevented to date instituting two-person EMT calls. However, there may be other viable ways to address such concerns. If two firefighters are finishing a medical call and are needed for a structure fire, it may be possible to organize so that they can simply meet the other firefighters. The changing nature of emergency calls present serious challenges for fire departments everywhere, including College Station.

Conclusion

The City of College Station's rapid growth will continue to be an obstacle for College Station Fire Department. The task of recruiting more personnel and the retention of these individuals determine the success of the department growing alongside the city population. Policy options that look into new sources of revenues and adapting current roles of personnel and equipment might allow the Fire Department in College Station to keep up with growing strains on emergency services.

Part IV



ECONMOMIC DEVELOPMENT

Part 4

Executive Summary:

Section IV examines concerns voiced by The City of College Station’s Economic Development Department about attracting industry, retaining post-graduate bachelor’s and graduates as permanent residence, and expansion of the sales tax base. Several benchmark cities, as well as Bryan, TX were used in a comparison of unemployment rates, occupation data, and education data. Benchmark cities were also used to draw comparisons between the amounts of student startup businesses in College Station, which was identified as way to retain post-graduate degree holders. This Capstone’s research found that post-graduates leave where they attend school predominantly because of employment (58.1% of respondents in the U.S reported such).

Attracting and retaining business, and retaining post-graduate degree holders are closely related, and this section presents several recommendations to alleviate both concerns. This section presents other recommendations for attracting and retaining industry through utilizing opportunities provided by Texas A&M and the RELLIS Campus project, both of which create a variety of research and development opportunities.

Lastly, section 4 explores The Brazos Valley Workforce Solutions’ Integrated Plan Draft for 2017-2020, the importance of Blinn College and Texas A&M University as assets for regional workforce training and education, and provides recommendations for workforce development.

ROADMAP

Attracting Opportunity

- Introduction
- Comparative Demographics
- What Industry Wants
- Student Retention
- Advanced Manufacturing
- Attracting Retailers
- Conclusion

Student Startups & Entrepreneurship

- Population Impact
- Importance of Student Startups
- Overview of Current Trends
- Comparing Benchmark Cities
- Conclusion

Workforce Development

- Current State of Workforce Development
- Future Projections
- Partnerships & Goals
- Policy Options
- Conclusion

Attracting Opportunity

Introduction

College Station is a city teeming with talent ripe for economic production. While Section I of this report is primarily concerned with property taxes and the revenues brought in through its ad valorem rate, Section IV looks at how the city should look at bringing new industries and how they can use currently existing resources to do so. By increasing the number of businesses in the area, the city has a better ability to increase property tax revenues, and possibly boost the sales tax revenue that has remained rather slow in growth or stagnant in recent years despite continued population growth.

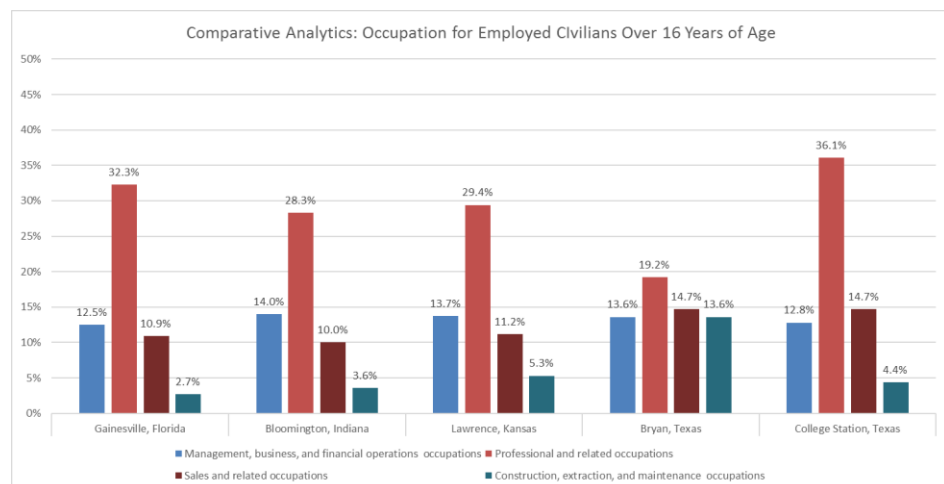
Comparative Demographics:

How Does College Station Stack Up with Other “College Towns”?

The City of College Station is above the national average in terms of low rates of unemployment and high levels of education, but looking into comparable cities can offer insight into trends that the City should pay attention to when planning for the future. The benchmark cities within this analysis are selected based on student population ratio (student population/total population) and regional profile (rural/semi-rural).¹⁴⁹ . The

comparison cities were Gainesville, Bloomington, and Lawrence. Bryan was included as a comparison because of the spatial proximity between the two cities and the transient nature of the citizens (employed in

Figure 21: Select Occupations for Employed Civilians Over 16 Years of



¹⁴⁹ Florida, Richard. *The Reality of America's College Towns*. Citylab, The Atlantic, <http://www.citylab.com/housing/2016/09/americas-biggest-college-towns/498755/>. 8 September 2016.

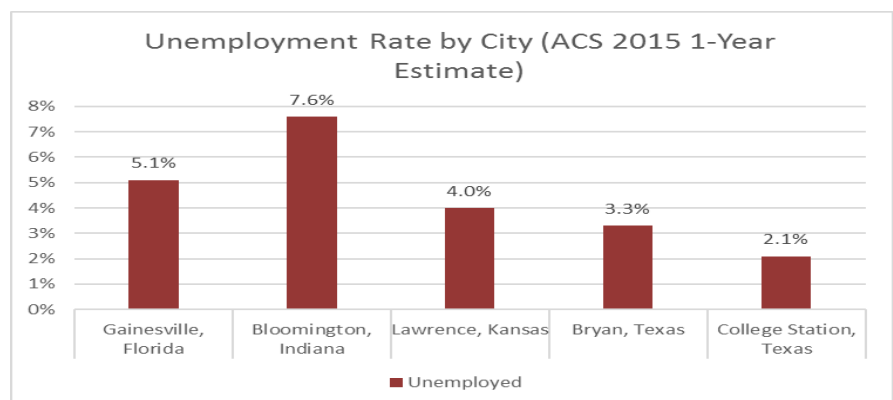
ECONOMIC DEVELOPMENT

one city but living in another). Each of these were chosen because of the availability of the recent American Community Survey 1-year estimates for the city and because they are all metros which exist within the same category as College Station (metros between 100,000 and 1 million in size).

Industries were chosen based on largest percentage within the occupation (professional and related occupations), retail/market reasons (sales and related occupations), prestigious or high context occupations requiring a higher education (management, business, and financial operations/ professional and related occupations), and highest paying industries available that do not necessarily require an advanced education (construction, extraction, and maintenance occupations). College Station has a higher percentage of its civilian population 16 years and older in professional and related occupations across all comparison cities. In management, business, and financial operations occupations, College Station lags all comparison groups except for Gainesville, in which it outperforms by 0.3%. In sales and related occupations College Station exceeds all comparisons except for Bryan, which could be attributable to the spatial proximity of the two, which could lead to market “leakage” (consumers buying goods and services outside of a specific city range due to preferences or other factors) between both cities. Finally, construction, extraction, and maintenance occupations are low across all benchmark cities and College Station. Although College Station outpaces Bloomington and Gainesville in this category, it is about 0.9% below Lawrence and is over three times less than the City of Bryan. By looking across these classes, the City of College Station can gauge the health of their employment markets when compared to other cities.

Likewise, the city can see where possible inlets for improvement can be made when considering diversification of the workforce.

Figure 22: Unemployment Rate for Civilian Population 16 years and Over



In terms of unemployment the City of College Station has one of the lowest unemployment rates (per ACS 2015 1-Year Estimate) when compared to the benchmark cities. This could be attributable to two different possibilities. The first is that the economy of College Station can support a 97.9% labor force

ECONOMIC DEVELOPMENT

participation rate and has enough employment opportunities available for these individuals. The second possibility is that the average way of measuring unemployment may not pick up true unemployed numbers within the City of College Station or other such “college towns”. “People are classified as unemployed if they do not have a job, have actively looked for work in the prior 4 weeks, and are currently available for work”¹⁵⁰. People are counted as actively looking for work if they are:

- Contacting:
 - Employers directly or having interviews
 - Public or private employment agencies
 - Friends or relatives
 - School or university employment centers
- Submitting resumes or filling out applications
- Placing or answering job advertisements
- Checking union or professional registers
- Some other means of active job search

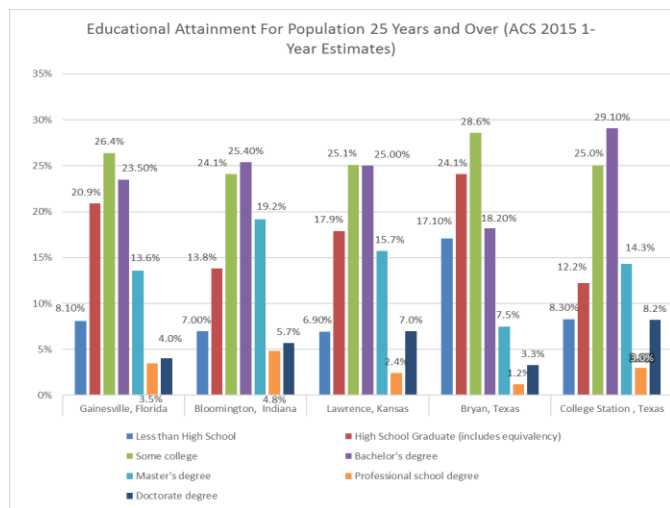
Comparing College Station to other college towns will tease out these issues of measurement by creating a constant within each, a transient

student population who may or may not be seeking employment and whom classify their occupation as “student”. It also shows the relative degree to which each city may or may not address unemployment and the degree to which it can be considered a “major issue”.

The educational profile of the City of College Station excels when compared across every category except Master’s degrees when

compared to Bloomington and Lawrence (which have 4.9% and 1.4% greater amounts of Master’s degree holders, respectively, compared to College Station). However, College Station has a larger percentage of individuals that hold a Doctorate degree and has a low percentage of population 25 and

Figure 23: Educational Attainment for Populations 25 Years or Older



¹⁵⁰ U.S Department of Labor. *How the Government Measures Unemployment*, https://www.bls.gov/cps/cps_htgm.htm . 2017.

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over with less than a high school degree or equivalent. In terms of population over 25 who pursued a higher education post high school education is as follow:

- 71% Gainesville, Florida
- 79.2% Bloomington, Indiana
- 75.2% Lawrence, Kansas
- 58.8% Bryan, Texas
- 79.6% College Station, Texas

College Station ranks first in percentage of population age 25 and over who have pursued education beyond high school. This denotes that there exists an educated talent pool that exists within College Station and an economic resource, which can be marketed and emphasized (as of 2015 estimates).

What Industry Wants

“Foreign Direct Investment (FDI) is an important source of capital for economic development... and is closely linked to urban areas in most countries”.¹⁵¹ Foreign investment can create a multiplier effect for the economy in terms of job creation and stimulation of supporting services (such as business services, retail services, and restaurants), therefore bolstering property tax and sales tax revenue for the City. Although this World Bank study focuses on the stimulation of FDI, the reasoning for why a firm invests/locates within a city are the major takeaways that can apply to future city planning for both domestic and international firms. Multinational firms have “location advisors” which help in determining a list of possible locations and highlight four primary motives for expansion (location choice):

- **Market Seeking Actions:** Searching for new consumers for goods and services.
- **Efficiency Seeking:** Searching for low labor costs or input costs (reduction in transportation, fixed, or production cost).
- **Strategic Asset-Seeking:** Looking for tangible or intangible assets through investments, acquisitions, or alliances with competitors to strengthen market position.
- **Resource-Seeking:** Search for cheaper natural resources and raw materials.

¹⁵¹ Zhu, Juni T., Larrey, Yago Aranda, Santos, Valerie Joy. *What do Multinational Firms Want From Cities? Insights from Investment Promotion Intermediaries and Location Advisory Consultants*, The World Bank, December 2015.

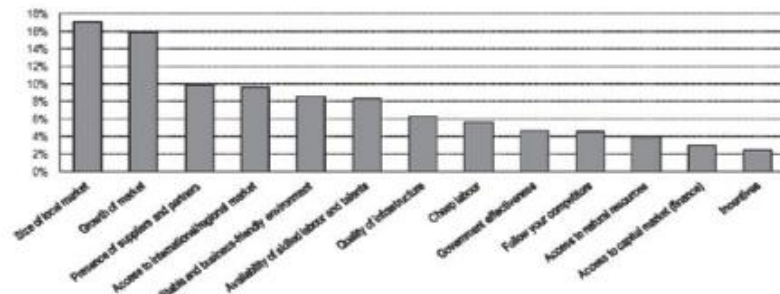
ECONOMIC DEVELOPMENT

How an industry weighs these can affect how much influence the city has in industry location decisions. Cities have greater influence in certain categories, such as city image and responsiveness, and less control when it comes to factors such as endowment in terms of natural resources. When considering location, location advisers apply a filter that has two initial steps:

1. Screen the macroeconomic environment and political and social stability.
2. Utilize project-specific criteria as well as an assessment of supporting infrastructure, cost of labor, and quality of life.

After the initial screening, a follow up is done including site visits and multiple negotiations between local governments, industries, and other parties with an interest in the investment. A city looking to attract investment from industries should consider the factors that influence location decisions and their importance to a company. The World Investment Prospects Survey conducted a mixed-mode approach for data collection and utilized direct mail, e-mail and telephone interviews. From this survey, 241 responses were collected from developed countries in Europe, North America, Asia, and elsewhere, as well as developing countries. Figure 24 shows the factors that most affect location decisions, ordered in terms of their perceived importance by respondents.

Figure 24: Location Factors by Order of Importance



The results suggest that cities can compete for industries primarily through mechanisms such as the quality of their institutions, the

strength of their infrastructure, the availability of human capital, and the investment/business climate around them¹⁵². Figure 24 shows that an investors' interest and goals vary and as such, the ways in which a city can influence their decision can vary. Therefore, it is imperative to capitalize on the strategic advantages available to one's city when attempting to attract firms.

¹⁵² ibid

Student Retention

Outside of private incentivization of companies to the area, another area in which the Capstone considered important for economic growth in College Station is student retention after graduation from Texas A&M, and surrounding college and universities. How can the City of College Station make it so today’s students and renters become tomorrow’s homeowner and industry leaders here in the BCS area? A policy brief from the New England Public Policy¹⁵³ examines the factors that affect New England’s ability to retain recent college graduates. Faced with the similar issue of post-graduates leaving the region and the same questions needing answers, The New England Public Policy Center set out to find the causes contributing to graduate migration. “New England’s lower retention rate partly reflects the high share of students who migrate into the region to attend school. Having already migrated once to attend college, these students have a higher propensity to relocate after graduation—often to return home—whether to take a job or be closer to family”¹⁵⁴. This study assessed that 85.7% of natives stayed within the New England area whereas only 19.8% of non-native (out of state students) students stayed within the area. Reasons for relocation for 1998-2011 are arranged by New England as an aggregate as well as Mountain, Pacific, and National levels.

Table 5: “Retaining Recent College Graduates in New England: An Update on Current Trends”

	Employment	Family	Housing	Other
New England	57.9%	11.3%	1.6%	29.2%
Mountain	49.8%	13.5%	2.4%	34.5%
Pacific	52.5%	15.5%	6.7%	25.3%
United States	58.1%	11.6%	3.7%	26.6%

From the survey information highlighted above, the primary reason for relocating is employment (with all regions having approximately half of graduates relocating for employment opportunities) (See Table 5). Modestino highlights that building stronger ties between colleges and local employers to help graduates learn about opportunities and form networks in the region is one means of graduate retention. This can be achieved through facilitating internships and co-ops, which can:

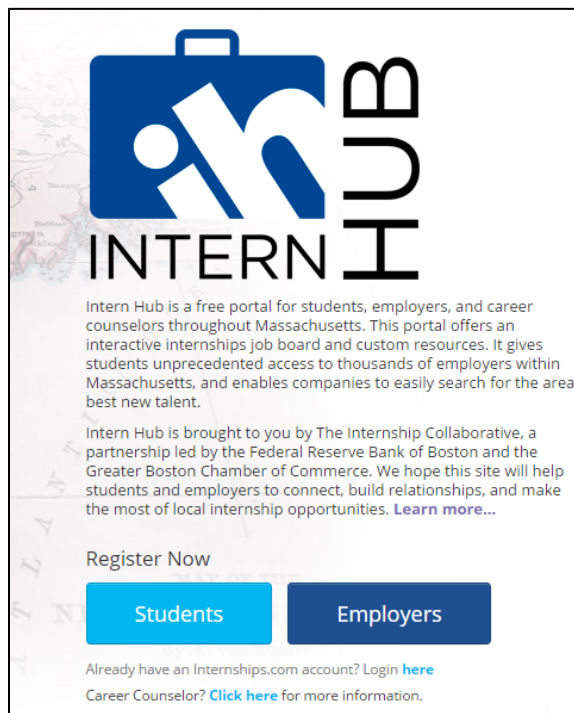
¹⁵³ Modestino, Alicia Sasser. *Retaining Recent College Graduates in New England: An Update on Current Trends*, New England Public Policy Center at the Federal Reserve Bank of Boston. May 2013.

¹⁵⁴ Ibid

- Lower recruiting costs for employers
- Provide work experience for students
- Enhance the reputation of the college/university

An example of this is the Greater Boston Chamber of Commerce and the Federal Reserve Bank of Boston that have “launched an online database in 2011 ‘Chamber Intern Connect’”¹⁵⁵. As seen in Figure

Figure 25. InternHub Example



25, InternHub allows students looking to stay in the region internship opportunities through a clearinghouse making the transition easier for employers and students wanting to gain vital work experience.

Looking outside of Boston, a publication by Campus Philly (a nonprofit organization in the Philadelphia, Pennsylvania area that is focused on encouraging economic growth through college student retention) titled “Retaining College Talent and Spurring Job Growth” (2015) highlights how the organization strategizes student population retention. According to their measures, “64% of college students educated in the Greater Philadelphia colleges and universities stay in the region after

graduation” and “73% of recent college graduates recommend Philadelphia as a place to live (an increase from 55% in 2010)”¹⁵⁶. Campus Philly notes the importance of an educated citizenry and how they have become a “brain magnet” which has placed it as 8th in percentage growth in population 25 to 34 years old with a college degree (per *Young and Restless*, CEOs for Cities, 2011). They attribute this success in large part to the “Knowledge Industry Partnership”, a project that was developed 17 years ago by Philadelphia city leaders to “engage college students in the life of the city with an eye towards retaining them”¹⁵⁷.

¹⁵⁵Ibid

¹⁵⁶ Campus Philly. *Retaining College Talent and Spurring Job Growth*, pg. 2, Campus Philly, Philadelphia, PA, 2015. March 2015.

¹⁵⁷ Ibid

Campus Philly has put student retention as a priority through internship programming and community connections for students within the Philadelphia region¹⁵⁸.

- **Internships and Job Programming**
 - Matching interns and providers through <https://careers.campusphilly.org/>, a region-only source for internships and entry-level jobs for students and recent graduates.
 - “Meet your Industry Events”: Educate students about job opportunities within the Philadelphia area. This includes in-person events with tech, entrepreneurship, healthcare innovators, finance, and accounting.
 - Internship Readiness for Employers and Students: Provision of technical assistance to employers interested in starting an internship program and provides “internship in a box” guides to fledgling organizational internships.
- **Community Connections**
 - Open Arts: Provides access to free arts and cultural events for Philadelphia area college students. Works in conjunction with 43 arts and culture institutions that offer free tickets through a web portal and foundation funding.
 - Inclusive Leadership Conference: A full day leadership conference for students that guides them in growing their leadership skills while connecting them with local organizations that are seeking strong involvement.
 - Partnerships: Provides information on organizations for students and information on students for organizations. Acts as an intermediary between the two.
 - Programming:
 - The Fall Tour- Provision of tours on and off campus (which includes civic, cultural, and professional opportunities) for students during orientation and student activities weeks.
 - College Fest- A full day festival that welcomes new and returning students with free entry to museums, free music, activities, and an introduction to Philadelphia retail and entertainment.
 - “Insider Guides to Philadelphia”- Publications for students

These studies infer that there is some truth to a city’s ability to “brain drain” (large-scale emigration of highly skilled individuals) and “brain magnet” skilled workers from other cities. Another inference of note is that there already exists an infrastructure that can be utilized by the City of College Station to do the same. Jobs for Aggies is a website that has job listings for students seeking gainful employment. Although there is a large amount of part-time job listings, there is not much in terms of internships or co-ops outside of university opportunities. By helping to connect employers seeking talented and willing to work students in the BCS area, the City of College Station might capitalize on internships just as

¹⁵⁸ Ibid

Campus Philly has (with 71% of students with summer internships staying in Philadelphia after graduation). However, there is some dissonance between what industries/firms want from a competitive city and what students want from their place of graduation. A talented and educated labor pool desires economic opportunity, but the industries/firms that provide these services are seeking resources, such as a talented and educated citizenry.

The next section addresses ways in which regions have encouraged the emergence or retention of emerging/advanced industries, which enhance the prospects of retaining graduates who are seeking economic opportunity.

Advanced Manufacturing

In the “brainsharing” model, university research and talent combine with industry innovators to create new and emerging advancements in technology, medical treatments, and startups¹⁵⁹. Agtmael focuses on the changing nature of the rust belt facilities, which has been dependent upon the advancement of manufacturing technology (laser shaping, 3-D printing, and nanotechnology), as well as collaborative networking between organizations and universities. Whereas the City of College Station is not a “former industrial giant crippled by outsourcing and shuttered factories”, it does have a key component that makes it a candidate for developing into a brainsharing environment— a tier 1 research university. Texas A&M University is a global powerhouse in terms of facilities, research, and faculty and staff. By collaborating with the university to encourage industry innovations and breakthroughs, the City of College Station has an opportunity to encourage smart industries (such as expansions into the bio-corridor plan) and facilitate a collaborative environment.

As an example of the power of university-focused brainsharing initiatives, the State University of New York (SUNY) Poly’s Nanotech Complex is a new brainsharing facility established to foster next generation innovation. This initiative laid the groundwork for a unity between industry and university research, with 3,500 industry scientists and engineers working beside faculty and graduate students to create the next-generation of semiconductors. This model has attracted investment from IBM, Nikon,

¹⁵⁹ Agtmael, Antoine Van. Bakker, Fred. *The Smartest Places on Earth, Why Rustbelts Are the Emerging Hotspots of Global Innovation*, Public Affairs New York. 2016. New York, NY.

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ASML of Holland, Zeiss (a lens maker), and Trumpf (a laser expert). What's more, startups and spinoffs from this collaborative environment are encouraged, with such companies as Bess Technologies (a company centered on innovation of lithium batteries for electric cars and consumer electronics) taking off. This has created innovation, investment opportunities, and employment opportunities for Albany, New York. This is an instance of how utilization of university-industry partnerships can lead to city economic well-being.

Another instance of industry-university collaborative environments is in the form of Clemson University and its cooperative/internship programs. Clemson University is an engineering school located within the city of Clemson, South Carolina. It is located within a 60-mile radius of BMW, Bosch Michelin, and other auto manufacturing businesses. The State of South Carolina offers a list of tax incentives to the auto industry "to promote automotive industry expansion, exports and innovation within the state"¹⁶⁰.

These include incentives such as:

- No state property tax
- No local income tax
- No inventory tax
- No wholesale tax
- Jobs Tax Credits: Income tax credits ranging from \$1,500-\$8,000 for each new job created.
- Corporate Headquarters Tax Credits: 20% income tax credit and a credit equal to 20% of tangible property costs in establishing headquarters operations.
- Corporate Income Tax Moratorium: Locating in distressed counties could allow tax abatement up to 15 years.
- Research and Development Tax Credit and Investment Tax Credit

The university's place in this equation is depicted in the multiple partnerships between industry and the university. This results in opportunities for students to work closely in industries with a co-op program. The co-op program is like an internship during class-time. Students are opted into a three-session work program in which they are paid hourly and acquire benefits such as discounted tuition. Local companies

¹⁶⁰ South Carolina Automotive. *Tax Incentives for Automotive Companies*, South Carolina Department of Commerce, <http://www.scautoindustry.com/sc-advantage/tax-incentives-automotive-companies>. 2017.

and tech partners are also able to work in conjunction with the career center and offer internship opportunities directly to students searching for them.

“Clemson and the Economic Development department work in conjunction to manage and advocate for major enterprise and programs that are developed through seven institutes”¹⁶¹. Clemson has developed five enterprise campuses that represent the University’s strategic areas of research and exploitable strategic/competitive advantages. Clemson emphasizes five areas:

- **Advanced Materials**
 - Clemson University Innovation Campus and Technology Park (CUICAT)
- **Automotive and Transportation Technology**
 - Clemson University International Center for Automotive Research (CUICAR)
- **Biotechnology and Biomedical Sciences**
 - Clemson University Center for Human Genetics (CCHG) at Greenwood Genetic Center
 - Clemson University Biomedical and Engineering Innovation Campus (CUBEInC)
- **Sustainable Environment and Energy**
 - Clemson University Restoration Institute (CURI)
 - Public Service Activities (PSA) Research and Education Centers
- **Information and Communication Technology**
 - Clemson Computing and Information Technology (CCIT)

These campuses and institutes work to create “coordinated teaching, research and community engagement programs that are aligned with key strategic industry clusters for South Carolina”¹⁶². Such advancements like biomaterials and tissue engineering in the Biotechnology and Biomedical Sciences campus, and the Partnership Office (whose goal is to make connections between automotive companies within the center and the state automotive ecosystem) based out of the Automotive and Transportation Technology Campus, align with the state and city’s economic development goals. As such, the City of Clemson has established the following collaborative system:

¹⁶¹ Farley, Bob. *Case Study: Clemson University*, City of College Station. December 2015. Accessed 1 March, 2017.

¹⁶² Clemson University. *Economic Development at Clemson University*, <http://www.clemson.edu/economic-development/index.html> . March 2017. Accessed 5 April, 2017

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1. “Staffed Economic Development Department
 - a. Led by a Vice President of Economic Development that is one of three mission VPs of the University and corresponds with the University President.
 - b. Works with the VP for Research and the VP for Academic Affairs to identify and integrate innovative programs that have economic and market relevance.
2. The mission and model connects academic research with the private sector through development of the strategic Technology Parks throughout the Upstate Alliance region”¹⁶³.

This type of model can be a growing possibility with the development of the Texas A&M RELLIS campus “which stands for the "Aggie core values" of respect, excellence, leadership, loyalty, integrity and selfless service”¹⁶⁴. The RELLIS campus will have three of A&M’s system engineering agencies (Texas A&M Engineering Experiment Station [TEES], the Texas A&M Engineering Extension Service [TEEX], and the Texas A&M Transportation Institute [TTI]) housed within it, each of which will be utilizing existing and up and coming research and development facilities. Within this new facility will be:

- **Center for Infrastructure Renewal:** a Texas Legislature authorized development that will research and develop new methods in infrastructure design and restoration as well as train private sector providers on how to apply them.
- **Cyber-Physical Research and Development Center:** Robotics, autonomous and connected vehicle technologies, and cyber-security R&D.
- **TEES Headquarters and Research Center**
- **Safety Process Center:** Will be home to the Mary Kay O’Connor Process Safety Center, which will foster the development of safer processes, equipment, procedures, and management strategies for the processing industry.
- **Industrial Distribution Center:** Home to the Joan Read Center for Distribution Research and Education, the only research center in the world focused on distribution. Included here is the Global Supply Chain Lab and the Talent Incubator.
- **TEEX training facility,** with a primary focus on law enforcement
- **Advanced Research in Transportation Technology**
- **Education Center** for those not admitted to TAMU (offers a four-year degree via other universities within the A&M system)¹⁶⁵

¹⁶³ Farley, Bob. *Case Study: Clemson University*, City of College Station. December 2015.

¹⁶⁴ Watkins, Matthew. *New A&M Campus Will Focus on Research and Students "Not Admitted" Into A&M*, The Texas Tribune, <https://www.texastribune.org/2016/05/02/m-system-announces-new-campus-research-students-no/>. 02 May 2016. Accessed 27 March, 2017.

¹⁶⁵ Texas A&M Engineering Experiment Station. *Introducing the RELLIS Campus*, Texas A&M University. <http://tees.tamu.edu/research/facilities/rellis/> 2017.

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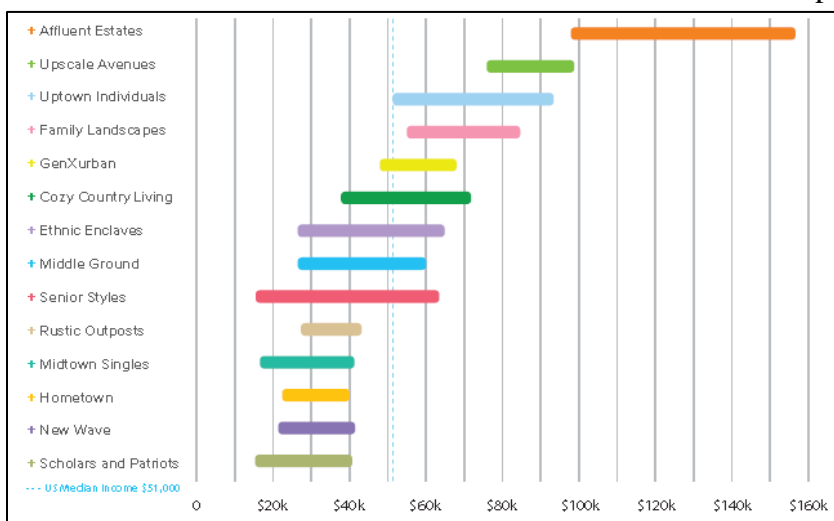
These centers based in research, design, and development are opportunities for the City of College Station to connect industries with university resources and research and plant the seeds for an eventual “brainsharing” environment.

By investing and facilitating a partnership between the university and industry, the City of College Station could create an environment for industry expansion and spinoffs within a brainsharing environment like Albany, NY and SUNY Poly’s Nanotech Complex. In embracing a staffed model in which the City of College Station, Bryan, and Brazos County chair key positions within university/industry partnerships, a mutual benefit can be achieved between all involved parties. All the above point to a key factor: teamwork. It takes the university, industry, and the locality to create what has been highlighted above. Without a collaborative environment, The City of College Station may risk an opportunity for input on industry partnerships and may miss a large realignment of research/development interests with the RELLIS campus redevelopment project.

Attracting Retailers

The City of College Station has many market profiles, which show the slices of demographics within the city, competition demographics of the surrounding cities such as Hearne, Brenham, and Bryan (which could be considered as a leakage analysis as well), and a tapestry segmentation (which breaks

Figure 26. The Retail Coach.

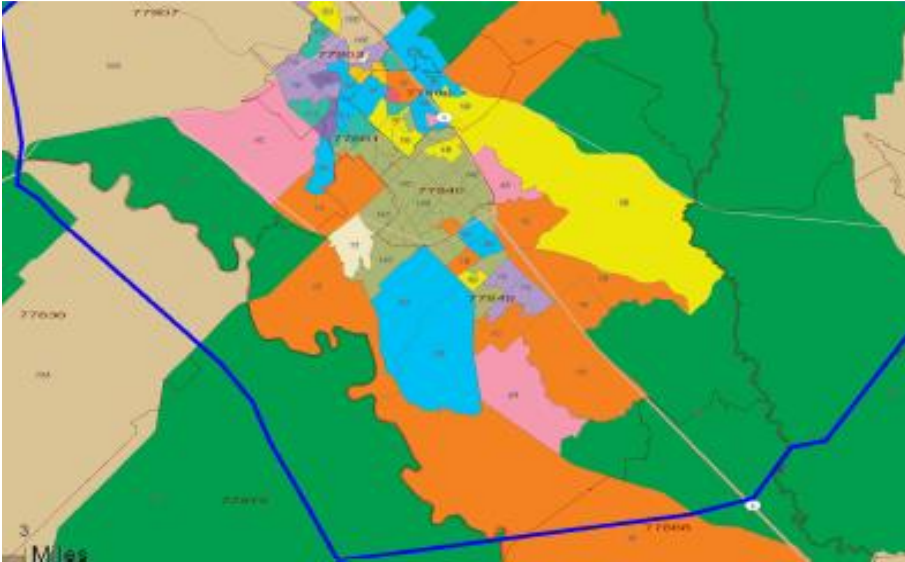


geographic areas down into market sections based on demographic profile and possible buyers). These were produced by the Retail Coach, a national retail analytics and locational intelligence firm that specializes in retail market analysis and recruitment”¹⁶⁶. The tapestry

¹⁶⁶ The Retail Coach. *Primary Retail Trade Area Psychographic Profile College Station, Texas*, The Retail Coach. June 2016.

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Figure 27. The Retail Coach 2016. “Lifemode Summary Groups Map”.



segmentation can be seen below as a segmentation of neighborhoods that are generated based on demographic profiles and criteria from the Esri tapestry segmentation tool¹⁶⁷. Based on socioeconomic and demographic compositions of the regions, U.S neighborhoods are separated into 67 distinct market segmentations and then combined into 14 “Lifemode Summary Groups”. The way that these

groups apply to the BCS area can be seen in figure 8, which shows that, when referenced with figure 26, College Station has a mixed psychographic profile with a “scholars and patriots” centric neighborhood assignment. This gives a psychographic profile of College Station as “half of the residents are enrolled in college, while the rest work for a college or the services that support it.”¹⁶⁸

To borrow from the tapestry segmentation which focused on demographics, a retail segmentation was conducted which broke down several census tracts¹⁶⁹ and utilized imported Google Maps keyhole markup language zipped (KML and KMZ) which was hand-digitized. Classes were generated based on the retailer/organization purpose. These were then summarized by census tract and can be seen in Figure 28. This analysis can be used in determining where retailers can fit in when moving into the area helping businesses aim to locate, based on location criteria. Some types of location criteria can range from where customer centered properties, where competition exists, and if there are supporting or complimentary retailers (Such as food services or retailers near one another).

¹⁶⁷ Esri, *Esri Tapestry Segmentation*, Esri, <http://www.esri.com/landing-pages/tapestry> . April 2017

¹⁶⁸ The Retail Coach. *Primary Retail Trade Area Psychographic Profile College Station, Texas*, The Retail Coach. June 2016.

¹⁶⁹ U.S. Census Bureau, TIGER Shapefiles, Census Tract, College Station, Texas 2016, U.S. Census Bureau, <https://www.census.gov/geo/maps-data/data/tiger-line.html> . March 2017, Accessed 23 March, 2017.

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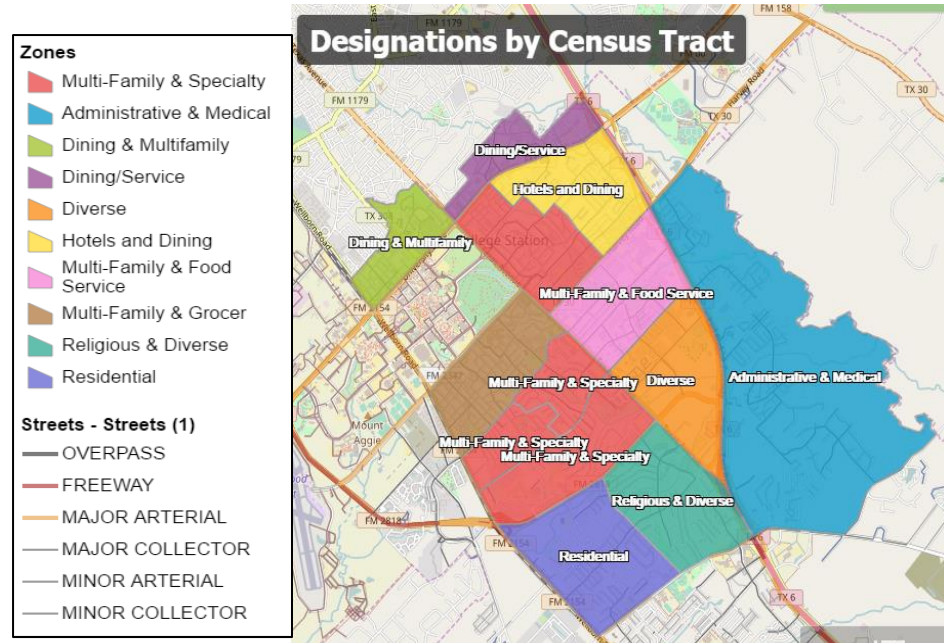
Furthermore, it could be updated

by adding new points and expanding the tapestry to include other segments of the city.

Census level data could be imported into the map as well, so if a retailer wanted to know average household income, age demographics, or presence of children,

they could ask and the information could be provided with a simple switch in representation on the map.

Figure 28: "College Station Tapestry"



Conclusion: Multi-Faceted Approach to Economic Development

Compared to other benchmark cities such as Gainesville and Bloomington, the City of College Station has a low unemployment rate and a robust workforce. This benefits College Station because it shows two things: the economic health of the region (in terms of a low unemployment rate) and a highly talented, educated workforce available for firms (in terms of 79.6% of College Station’s population over 25 years of age having greater than a high school degree for 2015).

In assessing where industries choose to locate, the City of College Station can work to address the factors it has control, such as quality of their institutions, the strength of their infrastructure, the availability of human capital, and the investment/business climate. The city is already making infrastructure improvements such as road and wastewater updates so that congestion and strain do not stifle businesses to expand in the city. Continuing with these infrastructure updates and emphasizing

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what investment opportunities are available for investors are some best practices that the City of College Station can pursue.

Graduate retention in the local region is an issue because the preceding section emphasizes that industries may rank resources, such as a talented workforce, as being very important for locating to a city. This section emphasized that graduates migrate from their region of education mainly for employment opportunities. By examining case studies such as SUNY Polytech's Complex and the City of Clemson and their partnership with Clemson University, the City of College Station has an outline of how to advance its economic development agenda through university/industry collaboration and partnerships. This in turn will create co-op and internship opportunities for students so that they can produce valuable research and development for industries, fueling the brainsharing chain and providing opportunities for spinoffs and other industries to benefit from the innovations being churned out. If administrated and facilitated correctly, RELLIS campus can become a possible inroad into creating an outlet for smart industrial production and a means to help students stay in the City of College Station.

In terms of its market analysis portfolio and attracting of new businesses, the City of College Station has multiple analyses contracted from The Retail Coach. The primary focus of this analysis centered on the primary retail trade area and psychographic analysis piece that The Retail Coach created. This centered on Esri's tapestry segmentation, which categorized BCS into 14 summary group "neighborhoods". By categorizing census tracts by retailer/business weighted summary statistics, a retail heat map was generated. In addition, the demographic profiles/information from the original tapestry segmentation from The Retail Coach could be combined with this one as well. This can allow for a switch in visual representation of where competitors can cluster as well as where target markets are located.

Although the City of College Station is geospatially within a triangle between Austin, Houston, and San Antonio and has challenges in attracting industry, the City of College Station has a myriad of ways in which to approach student retention, attraction of industry, expansion of the sales tax base, and the construction of a novel way of advertising College Station's economic health and competitiveness. By working in conjunction with Texas A&M University and being more proactive in its goals, the City of College Station could truly bring innovation and substantial growth to the Brazos Valley region.

Student Startups and Entrepreneurship in College Station

Population Impact

College Station-Bryan was among the 20 fastest growing metropolitan statistical areas between 2014 and 2015.¹⁷⁰ With an increasing population and increased opportunities provided through new industries and research jobs, College Station is in a position to encourage new businesses through student startups and various entrepreneurs as the economy expands into various areas. However, in 2010, the population between the ages of 20 and 24 was 32.9 percent and the population between the ages of 25 and 29 was 9.2 percent.¹⁷¹ This suggests that the city is not able to retain a high percentage of students who graduate from college. TAMU graduates tend to leave the region after graduation, mostly for larger metropolitan areas.¹⁷²

This may have a negative impact on the local economy as households with a college graduate spend more than twice as much on local goods and services than households with a high school graduate since college-educated households accrue more income, therefore, cities can improve the economic impact of their universities by encouraging higher local retention of graduates.¹⁷³ Also, Educational attainment as an economic driver for regions and Communities because investing in people is perhaps the most effective long-term economic growth strategy providing businesses with the talent they need to grow.¹⁷⁴ Prospects for economic development would be enhanced if the area were able to retain more of the young, well-educated students who come to study at and graduate from Texas A&M University or other local institutions of higher education.

¹⁷⁰ CDS Spillette. Economic Development Master Plan Phase One College Station, Texas. Rep. City of College Station, Aug. 2012. Web. <<http://cstx.gov/Modules/ShowDocument.aspx?documentid=17564>>.

¹⁷¹ US Census Bureau. Profile of General Population and Housing Characteristics: 2010: Geography: College Station City, Texas. N.p., 2010. Web. <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_SF1_SF1DP1&prodType=table>

¹⁷² CDS Spillette. Economic Development Master Plan Phase One College Station, Texas. Rep. City of College Station, Aug. 2012. Web. <<http://cstx.gov/Modules/ShowDocument.aspx?documentid=17564>>.

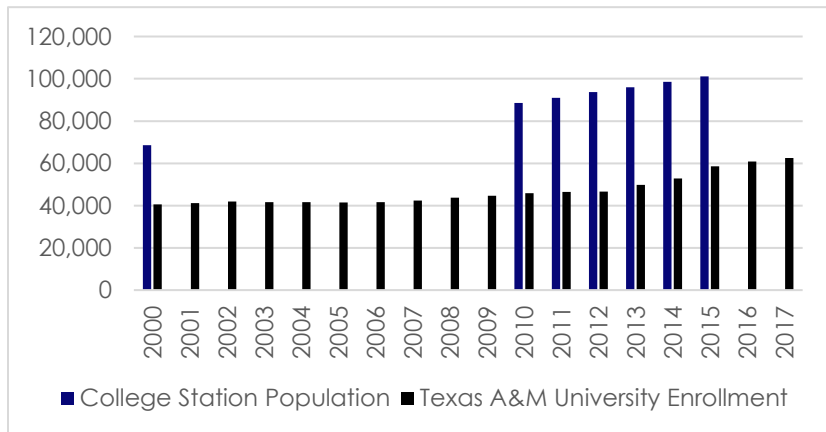
¹⁷³ Rothwell, J. "What colleges do for local economies: A direct measure based on consumption." (2015).

¹⁷⁴ Zimmerman, Delore, et al. "State and Local Economic Performance - Enterprising States 2013: Getting Down to Small Business." (2013).

Importance of Student Startups

Research universities generate local economic impacts largely through their graduate programs.¹⁷⁵ For example, availability of scientific labor is an important concern for managers of industrial laboratories, and they may choose to site a lab in an area if local universities can provide a steady supply of highly qualified science and engineering graduates.¹⁷⁶

FIGURE 29: STUDENT POPULATION VS. COLLEGE STATION



We compared the population changes in College Station data from the US Census Bureau and TAMU registrants' data in Spring Semester because the Census occurs in late winter or early spring when these institutions are in session, most students will report their place of residence as their student housing.¹⁷⁷ As shown in the Figure 1, the number of College Station population and the number of TAMU registrants change are similar. Recently, College Station campus enrollment reached 58,577 students in spring 2015.¹⁷⁸ Given that the total population of the city was 101,141 in 2015, this means that roughly half of the city's population is made up of students. In 2016, Forbes rated College Station as the 22nd most highly educated city in the nation.¹⁷⁹ From 2011 to 2015, 93.6% of College Station's adult population had "at least a high school" education; 54.4% had "at least a bachelors' degree". In addition, College Station has access to a continuous stream of educated, innovative science and engineering

¹⁷⁵ Hill, John K. University research and local economic development. Center for Competitiveness and Prosperity Research, L. William Seidman Research Institute, WP Carey School of Business, Arizona State University, 2006.

¹⁷⁶ Hill, John K. University research and local economic development. Center for Competitiveness and Prosperity Research, L. William Seidman Research Institute, WP Carey School of Business, Arizona State University, 2006.

¹⁷⁷ CDS Spillette. Economic Development Master Plan Phase One College Station, Texas. Rep. City of College Station, Aug. 2012. Web. <<http://cstx.gov/Modules/ShowDocument.aspx?documentid=17564>>.

¹⁷⁸ Texas A&M University. Texas A&M University Enrollment Profile Fall 2015. Texas A&M University, 2015. Web. <<https://dars.tamu.edu/Data-and-Reports/Student/files/EPFA15.aspx>>.

¹⁷⁹ Forbes. "Best Small Places For Business and Careers." Forbes. Forbes Magazine, 2016. Web. <https://www.forbes.com/best-places-for-business/list/small/#tab:overall_header:education>.

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graduates emerging from TAMU, which could provide adequate human resources for Technology companies.¹⁸⁰ As shown in Table 1, students who major in engineering and science accounted for 32.7 percent of all students enrolled in spring 2017.¹⁸¹ The proportion of these students suggests that they are more likely to find employment in technology-based companies after graduation.

However, many TAMU graduates typically end up moving to Houston or other larger metros to gain employment although various forms of entrepreneurial, cutting-edge businesses are a subject of focused economic development interest in the College Station area.¹⁸² There are relatively few STEM industry facilities in College Station, energy companies

Table 6: Texas A&M Students by Degree

Major	Under Graduate Students	Graduate Students		Total
		Masters	Doctoral	
Agriculture and Life Sci.	6,043	500	773	7,316
Architecture	2,437	357	83	2,877
Education and Human Development	5,346	1,032	563	6,941
College of Engineering	11,981	1,796	1,528	15,305
Geosciences	1,075	157	178	1,410
Liberal Arts	7,189	201	560	7,950
Mays Business School	4,756	1,054	61	5,871
Public Health	92			92
Science	2,030	284	650	2,964
Veterinary Medicine and Biomedical Sci.	2,134	166	140	2,440
Transition Academic Programs	2,165			2,165
Other Special Population	66	4		70
G. Bush School of Govt		457		457
Total	45,314	6008	4536	55,858

continue to keep their operations, and research consolidated in the Houston area rather than locate offices close to TAMU's related academic research facilities and graduating students.¹⁸³ This is because Houston has long been recognized among the most

competitive U.S. cities for corporate relocation and expansion activity by educated/skilled workforce, the absence of state or city income taxes, no state property tax, and exceptionally low cost of living index among big cities.¹⁸⁴ For example, some financially stable oil and gas corporations, such as Canadian companies, some of which are establishing operations in the United States simply to gain access to young STEM workers since establishing a foothold in Houston or Denver gives a Canadian company access to the STEM talent without having to tackle the immigration laws.¹⁸⁵ If College Station could retain more young well-educated graduates, that would provide a stronger foundation for

¹⁸⁰ CDS Spillette. Economic Development Master Plan Phase One College Station, Texas. Rep. City of College Station, Aug. 2012. Web. <<http://cstx.gov/Modules/ShowDocument.aspx?documentid=17564>>.

¹⁸¹ Texas A&M University. Texas A&M University Enrollment Profile Spring 2017. Texas A&M University, 2017. Web. <<https://dars.tamu.edu/Data-and-Reports/Student/files/EPSP17.aspx>>.

¹⁸² CDS Spillette. Economic Development Master Plan Phase One College Station, Texas. Rep. City of College Station, Aug. 2012. Web. <<http://cstx.gov/Modules/ShowDocument.aspx?documentid=17564>>.

¹⁸³ Ibid

¹⁸⁴ Houston Occupier Advisor Member Team. "2016 Houston Economic Outlook Research & Forecast Report." Houston Occupier Advisor Member Team, 2016. Web. <<http://www.colliers.com/en-us/texas/houstonoccupieradvisorsteam/marketnews/he2016>>.

¹⁸⁵ JLL Staff Reporter. "Energy Firms Position Themselves to Attract Tomorrow's Talent." JLL Real Views. JLL Real Views, 16 Mar. 2016. Web. <<http://www.jllrealviews.com/industries/energy-firms-position-attract-tomorrows-talent/>>.

economic growth. However, many graduates each year leave the area because of lack of employment opportunities.

People in regions that have a high percentage of college graduates are much more likely to see start-up businesses and entrepreneurial activity than those in regions with high concentration of less skilled workers.¹⁸⁶ Additionally, younger firms tend to create more jobs than established ones do. In general, startups are a major contributor to job growth and tend to be more responsive to high-investment opportunities.¹⁸⁷ The startups directly effect on new employment and new production, directly contribute to in-migration and increased regional productivity.¹⁸⁸ Encouraging student startups and entrepreneurship in College Station could help to retain talented students and graduates who could help spur local economic development.

Overview of Current Trends

The Center for New Ventures and Entrepreneurship (CNVE) is a hub of entrepreneurship at Texas A&M University.¹⁸⁹ There are 14 programs at CNVE, which provide education, training, networking and resources for enterprising students, faculty, veterans and former students, as shown in the Appendix Table 2. The 3-Day Startup is a 72-hour learning-by-doing campus workshop that teaches entrepreneurial skills to university students in an extreme hands-on environment. Aggie 100, which recognizes and celebrates the 100 fastest growing Aggie-owned or Aggie-led businesses in the world, provides a forum for asking nominated companies for high-level information about their organization. Aggie Entrepreneurship Saturday (AES) connects entrepreneur-minded Aggies with successful Aggie entrepreneurs to share knowledge, collaborate, build connections and create mentoring opportunities.

Aggies in Business (AiB) is a real-world consulting business that is managed and operated by students. The Entrepreneurial Leadership Award honors a nationally eminent business leader who has been

¹⁸⁶ Armington, Catherine, and Zoltan J. Acs. "The determinants of regional variation in new firm formation." *Regional studies* 36.1 (2002): 33-45.

¹⁸⁷ Adelino, Manuel, Song Ma, and David T. Robinson. Firm age, investment opportunities, and job creation. No. w19845. National Bureau of Economic Research, 2014.

¹⁸⁸ Fritsch, Michael, and Pamela Mueller. "Effects of new business formation on regional development over time." *Regional Studies* 38.8 (2004): 961-975.

¹⁸⁹ Mays Business School. N.p.: Texas A&M U, n.d. Center for New Ventures and Entrepreneurship. Web. <<http://mays.tamu.edu/center-for-new-ventures-and-entrepreneurship/>>.

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instrumental in the establishment and growth of a successful new venture and gives students and faculty an opportunity to interact with and learn from the honoree. Entrepreneurship and Empowerment in South Africa (EESA) is a six-week study abroad experience. Students who enroll in this program travel to Cape Town, South Africa where they work on consultant teams and assist local emerging entrepreneurs to develop practical solutions to pressing problems in surrounding townships. The Raymond Ideas Challenge is a campus-wide competition for students' idea for new products or services. Lunch & Learn events provides students an opportunity to network with entrepreneurially minded individuals as well as to expand their knowledge base. The MBA Venture Challenge is a competition program that asks teams of MBA students to quickly and effectively evaluate early stage start-up firms, offering real-world analysis, application of learning, feedback, and a showcase for talent.

Start-Up 101 is a workshop series held for students and community members interested in running their own business. The workshop is led by a variety of established entrepreneurs, Texas A&M former students and other business professionals. Startup Aggieland is a job creation program for TAMU students, staff and faculty, and former students in College Station providing several services, such as free office, free Wi-Fi, free conference room, and Startup Aggieland Seed Fund. Startup Aggieland Seed Fund offers grants for student ventures as a practical resource for advancing ventures to the next level of commercial development. Recipients of Aggieland Seed Fund awards must be a company client of Startup Aggieland, involve currently enrolled student at Texas A&M University, and prove commitment to their venture's success. Seed Fund Associates review Seed Fund applicants for completion and satisfaction of the following key metrics: Overall Business Model, Target Market, Competitive Advantage, Financial Strategy & Use of Resources, Risks & Assumptions, and Goals & Measurement. The Silicon Valley Bank Trek (SVB Trek) is over the four-day event in both San Francisco and Silicon Valley provide by Silicon Valley Bank.

Texas A&M is one of 15 prestigious universities chosen for the SVB Trek, which also include: Brown University, Cornell University, Harvard University, Ohio State University, Stanford University, University of California, Berkeley, University of Michigan, University of Monterrey, University of Notre Dame, The Massachusetts Institute of Technology, University of Waterloo, University of Southern California, The Wharton School at University of Pennsylvania, and University of Texas. SVB

Trek selects participants based on two factors: their aptitude to be future leaders in the tech industry and their desire to advance their career development, and provides customized, one-on-one meetings between each student and an entrepreneur, VC, or a SVB executive, based on student preferences. Lastly, Texas A&M New Ventures Competition is annual competition and promotes small business development and accelerating the commercialization of emerging technology products.

There is a successful startup with the help of these programs. TriFusion Devices is a 3D printing company launched by three Texas A&M students. With the help of Startup Aggieland and coaching by the Center for New Ventures and Entrepreneurship in Texas A&M University, TriFusion Devices was able to perfect its medical 3D printing solution, which creates custom-fit prosthetic devices within 48 hours, and won the prize at the Rice Business Plan Competition in Houston and received nearly \$400,000 in April 2016.¹⁹⁰ The Rice Business Plan Competition is a graduate-level student startup competition, which is hosted and organized by the Rice Alliance for Technology and Entrepreneurship and supported by Rice University. In May 2016, TriFusion Devices could grow their seed money by winning the prize at the Texas A&M New Ventures Competition and received \$35,000.¹⁹¹

In addition, the Research Valley Innovation Center (RVIC), a nonprofit 501c(3) corporation formed for the advancement of science, education, entrepreneurship and innovation, works in collaboration with Texas A&M University System components headquartered in Brazos County, Texas, the Bryan-College Station community, and private industry. RVIC is linked with BioCenter, The Garage and the Texas A&M Clean Energy program. RVIC's BioCenter program focuses on human and animal health, therapeutics, diagnostics, medical devices, bioinformatics, data analytic and research technology and has experience in Cancer Prevention and Research Institute of Texas (CPRIT), Texas Emerging Technology (TETF) grants and SBIR/STTRs, as well as angel and venture funding. The RVIC Garage is an open innovation, co-working space where emerging technology companies connect with community and university innovators and entrepreneurs. The RVIC Clean Energy Program offers an emerging

¹⁹⁰ Benedict. 3D printing news roundup: Airbus and Stratasys strike deal, Nano Dimension expands into 3D bioprinting. 3Ders.org, 2016. Web. <<http://www.3ders.org/articles/20161015-3d-printing-news-roundup-airbus-and-stratasys-strike-deal-nano-dimension-expands-into-3d-bioprinting.html>>.

¹⁹¹ Grunewald, Scott. 3D Printed Prosthetics Startup TriFusion Devices Wins \$35K at Texas A&M New Ventures Competition. 3D Print.com, 2016. Web. <<https://3dprint.com/135825/trifusion-new-ventures-35k/>>.

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technologies business incubation/acceleration environment for the commercialization of clean energy technologies.

Overall, although there is a connection between the Research Valley Innovation Center and Texas A&M University, it is concentrated on in the field of energy and medical. The Center for New Ventures and Entrepreneurship in Texas A & M University has a wide variety of programs that provide links with existing entrepreneurs, forums and workshops, consulting services, competitions, practice training, study abroad programs, and funding. These programs also enable us to identify successful cases, such as TriFusion Devices. However, the Center for New Ventures and Entrepreneurship does not have programs directly linked with local economy. We must know what else can be done to assist College Station in encouraging student entrepreneurship. To do so, we shall investigate key benchmark cities that were chosen due to student demographics. In the next section, we examine what is being done elsewhere that College Station might also consider doing in order to assist student entrepreneurs.

Comparing Benchmark Cities

We examined four cities--Bloomington, Indiana, Gainesville, Florida, Urbana-Champaign, Illinois, and Ann Arbor, Michigan—to identify additional or alternative programs that College Station might consider using to promote student startups

TABLE 7: POPULATION COMPOSITION

Subject	College Station, Texas		Bloomington, Indiana		Gainesville, Florida		Champaign, Illinois		Ann Arbor, Michigan	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
AGE										
Total population	93,857	100	80,405	100	124,476	100	81,055	100	113,934	100
Under 5 years	4,526	4.8	3,116	3.9	5,504	4.4	4,389	5.4	4,868	4.3
5 to 9 years	3,910	4.2	2,535	3.2	4,301	3.5	3,783	4.7	4,531	4
10 to 14 years	3,386	3.6	2,218	2.8	4,050	3.3	3,569	4.4	4,284	3.8
15 to 19 years	15,578	16.6	11,372	14.1	15,106	12.1	9,404	11.6	13,146	11.5
20 to 24 years	30,850	32.9	25,610	31.9	33,450	26.9	18,201	22.5	23,091	20.3
25 to 29 years	8,675	9.2	7,868	9.8	13,400	10.8	7,699	9.5	12,112	10.6
30 to 34 years	5,247	5.6	4,674	5.8	7,649	6.2	5,295	6.5	8,166	7.2
35 to 39 years	3,944	4.2	3,165	3.9	5,317	4.3	4,301	5.3	5,888	5.2
40 to 44 years	3,190	3.4	2,803	3.5	4,753	3.8	3,657	4.5	5,466	4.8
45 to 49 years	2,895	3.1	2,779	3.5	5,075	4.1	3,746	4.6	5,669	5
50 to 54 years	2,901	3.1	2,783	3.5	5,450	4.4	4,205	5.2	5,650	5
55 to 59 years	2,457	2.6	2,764	3.4	5,484	4.4	3,839	4.7	5,667	5
60 to 64 years	1,923	2	2,333	2.9	4,476	3.6	2,813	3.5	4,784	4.2
65 to 69 years	1,470	1.6	1,640	2	2,951	2.4	1,815	2.2	3,280	2.9
70 to 74 years	1,046	1.1	1,264	1.6	2,203	1.8	1,380	1.7	2,176	1.9
75 to 79 years	812	0.9	1,147	1.4	1,859	1.5	1,165	1.4	1,906	1.7
80 to 84 years	576	0.6	1,074	1.3	1,660	1.3	987	1.2	1,633	1.4
85 years and over	471	0.5	1,260	1.6	1,666	1.3	807	1	1,617	1.4
Median age (years)	22.3	(X)	23.3	(X)	24.9	(X)	25.7	(X)	27.8	(X)

and entrepreneurship. These four cities were selected because all are college towns, with total populations and population compositions that are very similar to College Station, as shown in the Table 7. For all five cities, the median age is in

the early to mid-20s. In 2010, the 20-to-24 age cohort was the largest among all age groups in city, containing between 20% to 33% of the total population. Those cities also have startup programs

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designed to help student start-ups and entrepreneurship. Understanding how those cities support student startups and entrepreneurship may help us to design more effective interventions to promote economic development in College Station.

Bloomington, Indiana

The Bloomington Economic Development Corporation (BEDC) is an economic development organization for Bloomington/Monroe County and focuses on increasing opportunities for their citizens whether it is through supporting their existing businesses, tackling workforce issues, or fostering entrepreneurial activity. In addition to the BEDC, other programs and resources in the next paragraph are available under the economic ecosystem.

The Switchboard helps entrepreneurs find accomplished executives, seasoned investors, business service providers and more in Bloomington's ecosystem. It helps them discover resources and opportunities available to them at any stage in their business. The Switchboard also provides an opportunity for entrepreneurs to connect, meet for coffee, share an idea, and expand their network by connecting with other entrepreneurs and individuals. B-Start is a pre-accelerator program of the BEDC designed for Indiana University and Ivy Tech Community College of Indiana student technology startups. B-Start participants are at the earliest stage of their business development, are coached through a rigorous comprehensive process of cohort activities, and given individualized mentorship over the course of the program to build a foundation for accelerating the growth of their startups. The Gayle & Bill Cook Center for Entrepreneurship at Ivy Tech Bloomington aims to develop and implement practical tools and resources for students, individuals and the community to foster entrepreneurship at Ivy Tech Bloomington and in the broader economic development region including Bloomington and its surrounding areas. This center provides classes, consulting, and community programs. Headquartered in Indiana University's Kelley School, the Johnson Center for Entrepreneurship & Innovation (JCEI) is a nationally ranked program that provides students with a wide range of experiences and classroom opportunities designed to develop their entrepreneurial perspective. Based on those programs and resources, economic ecosystem supports and fosters entrepreneurial activity in Bloomington.

Overall, there is an economic ecosystem supported and fostered by entrepreneurial activity in Bloomington. Specifically, the Switchboard seems to have a positive effect on retain people in Bloomington linking entrepreneurs and the local resources.

Gainesville, Florida

In Gainesville, the UP Gainesville organization driven by local volunteer efforts, supports new ventures, provides resources for entrepreneurs, and connects the community. There are two programs, Startup Weekend and Startup Digest. The Startup Weekend is a 3-Day event that features programmers, designers, marketers, and entrepreneurial minds of every sort, coming together to develop new and innovative business projects from the ground up. The Startup Digest is an email newsletter, curated by local startup leaders that keeps entrepreneurs in touch with happenings in their startup community.

Similar to Texas A&M and Indiana, there is an Entrepreneurship & Innovation Center at the University of Florida. The Center provides students the tools and experiences necessary to creatively pursue new opportunities and innovations in the start-up, social, and corporate venture arenas. Through courses, degree programs and complementary activities such as speakers and workshops, the Center currently serves more than 2,000 students per year. In addition, the Jeff Gold Experiential Learning Laboratory, which houses the GatorNest program, the Gator Hatchery student incubator and the IdeaGators Co-Working Space, provides students the opportunity to experience real life entrepreneurship while still in school. Co-curricular programs that include consulting to disadvantaged entrepreneurs in South Africa and their community partnerships in Gainesville, FL, as well as the \$40,000 Big Idea Competition, provide additional opportunities to “learn and do”, helping students create an innovative and entrepreneurial mindset.

However, in 2015 Gator100, an annual ceremony hosted by the Center for Entrepreneurship and Innovation that commemorates prosperous businesses founded or run by University of Florida graduates, only 12 new start-ups are based in Gainesville. Promotional campaigns designed to support startups and ramp up innovation only skim the surface.¹⁹² This analysis indicates Census data from 2010

¹⁹² Lima, Debora. Gainesville's entrepreneurs are slipping through its fingers. Alligator, 2016. Web. <http://www.alligator.org/news/features/article_30eafea6-de70-11e4-9174-e371dc5f1649.html>

shows that 20- to 24-year-olds make up about 27 percent of Gainesville residents, but that percentage drops 10 percent for 25- to 34-year-olds, suggesting students move on. In this regard, Gainesville and College Station seem to be in a similar situation. We would conclude that students do not have to start a business in Gainesville since the students' entrepreneurial activities are not deeply connected with the local community. Indeed, there are few efforts to link entrepreneurs and the local resources like Bloomington.

The Urbana-Champaign metropolitan area, Illinois

In Urbana-Champaign, most of resources and programs for student startups and entrepreneur are provided by Research Park at the University of Illinois, at Urbana-Champaign. There are organizations dedicated to assisting new student startups, and classes and clubs that explore entrepreneurship. The Technology Entrepreneur Center (TEC) is an interdisciplinary program in the College of Engineering engaging a pool of faculty, students, and alumni to provide the education, experiences, and resources that students need to become innovative leaders and empower them to change the world around them.

The Academy for Entrepreneurial Leadership (AEL) offers entrepreneurship programs, services and resources to faculty, students and community members. AEL helps to initiate, build and connect an understanding, appreciation and inclusion of entrepreneurship. iVenture Accelerator enables technological innovations, social ventures and cultural campaigns by supporting them with knowledge, funding, and access to University of Illinois resources and alumni. Students are equipped with the time, space and mentorship necessary to aid their efforts to find product-market fit, build prototypes, pilot programs, key partnerships, and scale. In addition, there are several Student Clubs, such as BOLD, the women in innovation student group and EntreCORPS, a student-managed consulting organization, to provide networking, business strategy, and design thinking advice to entrepreneurial startups.

The I-Start Entrepreneur Assistance Program is a matching award program targeted to University of Illinois researchers that have a strong potential for technology commercialization through new company formation. I-Start offers a suite of first-year professional services startup services for new University of Illinois entrepreneurs including business development, legal setup, SBIR application, bookkeeping assistance, and marketing assistance. The Research Park created an Entrepreneur-in-Residence (EIR)

program that hires local experienced technology entrepreneurs to provide monthly consulting to new startup ventures and prospective technology entrepreneurs. The AWARE (Accelerating Women And under Represented Entrepreneurs) program is a collaboration among the College of Engineering, the Office of Technology Management, and the Enterprise Works incubator at the University of Illinois Research Park, and is being funded by a \$100,000 award from the National Science Foundation to support entrepreneurship training, counseling, and networking.

The University of Illinois at Urbana-Champaign turns out more engineering graduates than any U.S. school except the Georgia Institute of Technology, however, no vibrant technology scene has grown around it or even 140 miles north in Chicago.¹⁹³ According to the National Association of Colleges and Employers, during each of the past five years, fewer than half of graduating engineers remain in the state while 10 to 15 percent have gone to California.¹⁹⁴ Given this, Urbana Champaign is exploring ways to retain greater numbers of its graduates, just like College Station. We presume that despite the good resources in Urbana-Champaign, the graduates did not remain in the city because graduates are attracted to cities with better conditions than Urbana-Champaign and they could not find a reason to do business in Urbana- Champaign.

The City of Ann Arbor, Michigan

In Ann Arbor, SPARK, an organization dedicated to the economic prosperity of Ann Arbor region, offers business acceleration services intended to drive the development of innovative technology startups by shortening the time required to attract capital, talent, customers and other strategic resources. Specifically, SPARK provides entrepreneur education & training, Incubator network, business accelerator services, entrepreneurial competitions, and portfolio companies.

For example, Entrepreneur Boot Camp is an intensive program that helps students identify critical issues for their business plan. SPARK's former Boot Camp attendees have gone on to secure funding, connect to advisors and other key talent, launch businesses, and succeed in business competitions and start-up

¹⁹³ Caro, Mark. Chicago Tribune. Rep. Chicago Tribune, 23 Oct. 2015. Web. <<http://www.chicagotribune.com/news/globalcity/ct-global-city-talent-drain-met-20151023-story.html>>.

¹⁹⁴ Ibid

forums across the state. The Ann Arbor SPARK Regional Incubator Network (SRIN) is comprised of two business incubators. These incubators provide physical office space, essential business services and business development guidance in Ann Arbor and Ypsilanti. The Michigan Pre-Seed Fund 2.0 (MPSF 2.0) is a \$6.8 million fund aimed at supporting early stage high tech companies by making investments in opportunities originating from technology innovation in Michigan Universities and in pre-seed and seed stage investments. The MPSF 2.0 offers equity or convertible debt investments, depending on the stage of the company and the co-investors participating in the financing. The three types of investments include Micro-Investments of up to \$25,000; Pre-seed Convertible or Equity Investments of up to \$150,000; and, Follow-on Investments of up to \$150,000. SPARK Business Accelerator services enable companies to move quickly through their lifecycle. From an initial idea to business formation, proof of concept, marketability and commercialization, SPARK is involved through all stages of start-up development. The Business Accelerator engagement provides up to \$50,000 of consulting and business development services. Several competitions such as Accelerate Michigan Innovation Competition and Great Lakes Entrepreneur's Quest, give an opportunity to win seed capital, gain media exposure, and more cash winnings.

Furthermore, Desai Accelerator is an intensive program of funding, mentorship, and resources to help early stage ventures scale and succeed. Companies selected to participate in the program can earn an investment of up to \$50,000 with exclusive use of office space in Ann Arbor, intern assistance and over \$500,000 in resources. Desai Accelerator announced the companies selected to participate in its 2016 cohort.¹⁹⁵ More than 80 technology-based startups submitted applications and the most promising six were chosen to move into the Accelerator and take advantage of its services.¹⁹⁶ Of the selected companies, 83 percent are Michigan-based, 33 percent have female founding members and 66 percent have a connection to the University of Michigan.¹⁹⁷ Since graduating from the Desai Accelerator, Companion, a person-to-person safety application and winner of the 2015 Michigan Business Challenge, has grown its user base to more than one million.¹⁹⁸

¹⁹⁵ The Zell Lurie Institute. University of Michigan's Desai Accelerator Reveals Startups Accepted to Summer 2016 Cohort. Rep. PR Newswire, 3 May 2016. Web. <http://www.mlive.com/news/ann-arbor/index.ssf/2014/08/u-m_business_engineering_schoo.html>.

¹⁹⁶ Ibid

¹⁹⁷ Ibid

¹⁹⁸ Ibid

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Barracuda Networks, the worldwide leader in Security, Application Delivery and Data Protection Solutions, created a large hub for tech startups in downtown Ann Arbor. Its driving goal is to support local entrepreneurs and help Ann Arbor's startup ecosystem grow and gain national visibility.¹⁹⁹ Located in the heart of downtown Ann Arbor, SPARK Central's Innovation Center offers an ideal location for launching, developing and growing your innovation-based technology. Tenants receive access to mentoring, networking and educational events. Marketing, recruiting, legal and other professional services are also available through the SPARK Business Accelerator.

The hallmark of Ann Arbor is that there is a large hub for tech startups which supports local entrepreneurs and help Ann Arbor's startup ecosystem grow. By providing a lot of space for business people at a reasonable price, people keep their business in Ann Arbor, and they naturally use the city's resources.

Conclusion

As shown in appendix table 2, we found that College Station and the comparisons have a variety of programs and environments that are similar in design, such as business incubator, competition, connecting city and startups, consulting Service, experiential training program, funding, forum/workshop, mentoring/networking among students & entrepreneur, study abroad program. However, several programs had a localized component in these benchmark cities whereas Texas A&Ms programs did not. It seems that the problem of students getting out of the city after graduation is not just College Station's problem. Despite their efforts to retain students after their graduation, Gainesville and Urbana- Champaign lose recent graduates to the larger metros area. On the contrary, Bloomington and Ann Arbor seem to be operating student startup programs well and retain people interested in startups and entrepreneurship.

College Station might investigate possibility of expanding several programs that relatively poorly maintained programs, but which have been found to be helpful in other cities. In College Station, there

¹⁹⁹ Henderson, Tom. Investors see downtown Ann Arbor as hub for tech startups. Crain's Detroit Business, 2015. Web. <
<http://www.craindetroit.com/article/20150222/NEWS/302229974/investors-see-downtown-ann-arbor-as-hub-for-tech-startups>>.

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seems to be few programs or business environment for students to remain in the city after graduation to continue their business. In Ann Arbor, the SPARK, an organization focused on developing the economy in the Ann Arbor region by assisting fledgling businesses, assisted startups related to the University of Michigan. In addition, there are a large hub for tech startups and a number of business incubators. Feature of Ann Arbor is providing an environment in which students or small businesses can stay in the city and do business using the city's resources. From this analysis, it is recommended that: 1) College Station aim at quantitatively analyzing startups within the BCS area for success indicators such as the number of start-ups managed by the program, the average earnings of startups, and the employment opportunities within them. This can be done through partnerships with the university, or alone. 2) Advocate for more programs directly linked with College Station. Although there were a variety of programs in the CNVE, we could not find any programs that were specific to the city. 3) Participate more in university business incubators to make the city's economic development goals known, to offer support networks (such as office space or possible in-kind seed funding), and to encourage and build an environment conducive to entrepreneurship.

Workforce Development in the Brazos Valley

Current State of Workforce Development

Brazos Valley Workforce Solutions recently published its Integrated Plan Draft for 2017-2020 that outlines the region's current workforce demographics and details projections for the upcoming decade. The plan focuses on the Brazos Valley region, which consists of the Counties of Brazos, Burleson, Grimes, Leon, Madison, Robertson, and Washington. Brazos County, with a population of 209,152, makes up 62.4% of the Brazos Valley's total population of 335,237²⁰⁰. The City of College Station, with a population of 109,788, makes up 52.5% of Brazos County's population²⁰¹. This report includes Brazos County as a whole and the surrounding counties in its region; College Station is one of the region's principal cities for employment and commerce. The City plays an important role, along with Bryan, as the Brazos Valley region's center for economic activity.

Currently the majority, 52.1%, of the Brazos Valley's employment is concentrated in the industries of Education & Health Services (35.4%) and Trade, Transportation, & Utilities (16.7%), these are the region's two most dominant sectors, making up over half of its workforce. Additional key industries include Professional and Business Services at 6.7% of regional employment and Construction at 5.7%. In terms of changes during the period 2014 to 2024, Education & Health Services is expected to grow by 4.6% and Professional & Business Services is expected to grow by 3.4%²⁰².

With regard to how the region's workforce will change between 2014 and 2024 a report by the Perryman Group²⁰³, an economic and financial analysis firm, commissioned by Brazos Valley Workforce Solutions specifies that optimizing economic growth requires well trained workers across a spectrum of occupations. The highest overall growth projections occur in education, protective services, and healthcare fields. Technical occupations that include computer science, mathematics, architecture, and engineering are also predicted to be high growth occupations. The report concludes that between

²⁰⁰ Brazos Valley Workforce Solutions. Workforce Solutions Brazos Valley Board Local Workforce Development Plan. 2016, <http://bvjobs.org/wp-content/uploads/2016/12/Public-Notice-DRAFT-Integrated-Plan.pdf>

²⁰¹ City of College Station. "Fast Facts". <http://cstx.gov/index.aspx?page=3428> Accessed 5 March 2017.

²⁰² Brazos Valley Workforce Solutions. Workforce Solutions Brazos Valley Board Local Workforce Development Plan. 2016, <http://bvjobs.org/wp-content/uploads/2016/12/Public-Notice-DRAFT-Integrated-Plan.pdf>

²⁰³ Ibid

2015 and 2040 the region will need 32,000 more workers with Bachelor's degree and around more 16,000 workers with an Associate's degree or some other form of postsecondary training in order to meet growth and replacement needs. Overall growth projects to be 3.3% annually through 2040; employment expects to grow at 1.86% annually through 2040. Projected growth estimates show 70,300 new jobs for the Brazos Valley. This is key for the City of College Station, which relies heavily on the region's principal industries through institutions like Texas A&M University.²⁰⁴

A breakdown of the Brazos Valley region's economic statistics by county provides a comparative analysis of their state of economic health. This portion is particularly helpful in providing a better picture for the current state of College Station's workforce by examining Brazos County as opposed to the region as a whole. Brazos County's unemployment rates is listed at 3.6% which, when compared to the U.S. average unemployment rate of 4.7% for December 2016, puts it below the national average. Additionally, the percentage of persons with disabilities under the age of 65 in Brazos County is 6.4%, which is also lower than the US average of 8.5%. However, the percentage of persons in poverty is listed at 26.4%, nearly double the US national average of 13.4%. However, this figure is most likely a misclassification due to the high number of full-time students in the county whose levels of income are typically low. These figures reflect the economic health of Brazos County, and to that effect the City of College Station, as well as indicate an area of great concern for both the county and one of its principal cities.²⁰⁵

Future Projections

The table below presents the region's target occupation projections for 2014-2024, utilizing a previous planned target occupation list updated with new Texas Workforce Commission (TWC) occupation projections²⁰⁶. They are the occupations available for Workforce Innovation Opportunity Act (WIOA) training subsidies in the Brazos Valley for eligible customers. The report notes that a number of occupations will be removed from target list due to low growth or openings and that a number of new occupations have been added. The removed occupations consist of Dental Hygienists, Pharmacy

²⁰⁴ Ibid

²⁰⁵ Ibid

²⁰⁶ Ibid

Technicians, Telecommunications Equipment Installer, Geological & Petroleum Technicians, and Physical Therapist Assistants.²⁰⁷

The top 25-targeted occupations in the table each require some form of post-secondary education. They are ordered in terms of projected demand between 2014 and 2024, with 1 being the highest projected occupation in demand and 25 being the least in demand. In order to support a workforce for occupations that require education beyond a high school diploma Brazos Valley Workforce Solution’s relationships with Texas A&M University and Blinn College are an essential asset. This is key with regard to occupations requiring technical training, as the local community college will best be able to provide such an opportunity at a reasonable cost. In order to accommodate the region’s projected growth, the labor force must be properly trained in order to fill the positions the local economy needs.

Table 7: The TWC’s top 25 targeted occupations of growth between 2014 and 2024 are as follows:

1) Office Clerks, General	10) Elementary School Teachers, Excluding Special Education	18) Accountants & Auditors
2) Combined Food Preparation & Serving Workers, Incl. Fast Food	11) General & Operations Managers	19) Heavy & Tractor-Trailer Truck Drivers
3) Retail Salespersons	12) Janitors & Cleaners, Excluding Maids & Housekeeping Cleaners	20) Secondary School Teachers, Excluding Special/Career/Technical Ed
4) Registered Nurses	13) Graduate Teaching Assistants	21) Correctional Officers & Jailers
5) Cashiers	14) Personal Care Aides	22) Customer Service Representatives
6) Waiters & Waitresses	15) Farmworkers; Farm, Ranch, & Aqua-cultural Animals	23) Stock Clerks & Order Fillers
7) Secretaries & Admin Assistants, Excluding Legal/Medical/Executive	16) First-Line Supervisors of Food Preparation & Serving Workers	24) Teacher Assistants
8) Cooks, Restaurant	17) Food Preparation Workers	25) Nursing Assistants
9) Construction Laborers		

²⁰⁷ Ibid

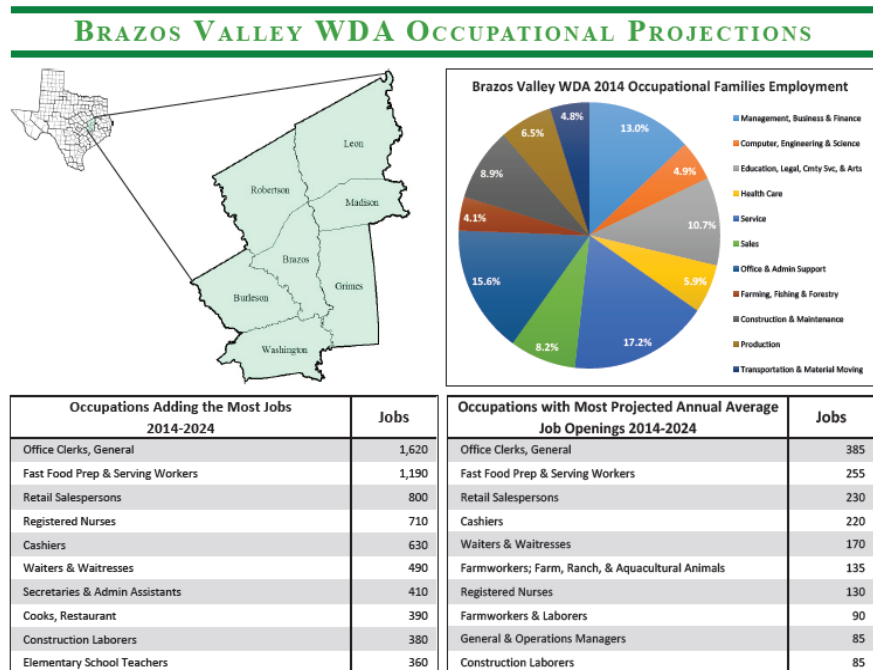
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These occupations will require some form of post-secondary education in order for College Station to capitalize on the Brazos Valley’s projected future growth. This reflects the importance of partnering with the region’s post-secondary educational institutions in order provide the skills laborers will need so that they can fill these growing occupations. The relationship Brazos Valley Workforce Solutions shares with the City of College Station is also of considerable importance as it provides a resource that can assist in connecting laborers to employers.

The Brazos Valley WDA Occupational Projections and Texas Occupational Projections charts, from the Texas Workforce Commission, reflect the current workforce demographics in the Brazos Valley in comparison to the rest of the state of Texas. In most respects, there is considerable similarity between Brazos Valley and the State as a whole. The sectors of businesses management and finance, office/administrative support, and service are the three most prominent sectors of occupational family employment in 2014 for both Brazos Valley and the State of Texas. Additionally, there is not significant disparity between the percentages each employment sector holds between Brazos Valley and the State of Texas. Each sector of employment has a variance of less than 3% when comparing between Brazos Valley’s employment demographics

FIGURE 30: BRAZOS VALLEY WDA OCCUPATION

and the employment demographics of the State of Texas. The projected occupations of growth between 2014 and 2024 appear to be similar as well. The occupations of retail salespersons and fast food prep & serving workers projects to add the most jobs in both Brazos Valley and Texas between 2014 and 2024. Brazos Valley however, has a much higher projected demand for office clerks & general administrative employees than does the State



of Texas. Overall, the economic demographics of Brazos Valley are representative of the State of Texas' employment demographics.

Partnerships & Goals

Brazos Valley Workforce Solutions contracts with state and federal entities to access workforce development programs through its workforce center system. The following are programs currently operating to assist laborers in the Brazos Valley:

- **Workforce Innovation Opportunity Act (WIOA)** – Seeks to provide assessment, training, case management and job placement services to eligible individuals.
- **Trade Adjustment Assistance (TAA)** – A program for the dislocated population offers assistance to lay off workers with a skill set or industry specific skill set that was migrated overseas for workers there to perform the job function.
- **Temporary Assistance to Needy Families (TANF)** – Also known as Choices in Texas, provides a foundation for customers to transition from public assistance to work and self-sufficiency through employment-related services.
- **Non-Custodial Parent Program** - The program targets unemployed or underemployed non-custodial parents who are behind on child support payments.
- **Supplemental Nutrition Assistance Program (SNAP)** – Program promotes long-term self-sufficiency and independence by preparing Supplemental Nutrition Assistance Program (SNAP) recipients for employment through work-related education and training activities.
- **Employment Services** - Provides comprehensive recruiting, job search and related services to businesses and job seekers to connect employers seeking workers and individuals seeking employment.
- **Child Care Services** – Program that subsidizes childcare services for eligible, low-income families, which promotes long-term self-sufficiency by enabling parents to work, attend school or participate in job training.
- **Adult Education and Literacy** – A program that serves adults who are at least 16 years old and/or are beyond the compulsory school attendance age, and either function below the high school level, lack a high school credential or, are unable to speak, read or write in English.²⁰⁸

The absence of adequate training opportunities for technical workers may impede the region from capitalizing on industries of projected growth despite the advantages provided by a major research university and favorable conditions with regard to cost of living. Additionally, the lack of readily available computer and engineering technician training programs and graduates from said programs may reduce the attractiveness of the region for advanced industry firms. With that being said, soft skills are a

²⁰⁸ Brazos Valley Workforce Solutions. Workforce Solutions Brazos Valley Board Local Workforce Development Plan. 2016, <http://bvjobs.org/wp-content/uploads/2016/12/Public-Notice-DRAFT-Integrated-Plan.pdf>

top priority, along with technical skills, in developing the region’s workforce. These skills consist of one’s ability to work well with others, take direction, punctuality, initiative, appropriate dress and demeanor, and being drug free.

The Texas Workforce Investment Council’s State Plan has established goals for its partner agencies, which include Brazos Valley Workforce Solutions. The goals the Brazos Valley Workforce Solutions Board are expected to meet are as follows:

- **Focus on Employers** – The Board will focus on employer needs through its business services unit, the operation of labor exchange services, its employer membership on its board, and its work with employers to outreach veterans to find quality employment.
- **Engage in Partnerships** – The Board will provide funding for occupational skills training and create a school-to-work pipeline to move secondary school graduates into the labor market or on to higher education.
- **Align System Elements** - The Board is working with the Department of Assistive and Rehabilitative Services (DARS) staff to enhance transition services for students and youth with disabilities to training and employment or post-secondary education.
- **Improve and Integrate Programs** – The Board will accelerate employment and improve efficiencies through shared resources to create new opportunities for customers and stakeholders.²⁰⁹

The strategies that the Board will utilize in order to successfully carry out these core programs are as follows:

- A. Expand access to employment, training, education, and supportive services for eligible individuals, particularly eligible individuals with barriers to employment.
- B. Facilitate the development of career pathways and co-enrollment, as appropriate, in core programs.
- C. Improve access to activities leading to a recognized post-secondary credential (including a credential that is an industry-recognized certificate or certification, portable and stackable).²¹⁰

As part of its strategic plan, the Board will coordinate with its agency partners who share the same target populations for services. Board and partner agency staff meets periodically to review referrals and ensure no member of the labor force in need of employment are neglected. Solutions are then developed and implemented to assist displaced laborers. Upon entering the workforce center, a laborer is informally interviewed to determine what their primary need is, whether it is just job search or more

²⁰⁹ Ibid

²¹⁰ Ibid

intensive help. This is where the training and development programs come into play for those in need of developing the necessary skills that will allow them to secure a position in their desired field. The intentions of these strategies and programs are to ensure that the region's workforce is able to fill the voids of labor market and improve the economy of the Brazos Valley.

Policy Options

Option I: Maintain Status Quo

The City of College Station may maintain the status quo and continue with its existing programs and tools for workforce development, which would be the promotion, preservation, and continuation of a partnership with the regional entity, Brazos Valley Workforce Solutions. By utilizing the programs and partnerships the Brazos Valley Workforce Solutions has access to, the City of College Station has the potential to benefit from the Brazos Valley region's projected growth. This would allow College Station to be in an advantageous position relative to the Brazos Valley's workforce expansion over the next decade, as it is one of the region's principle cities for commerce.

Option II: Potential Discussions

A recent report stated that Texas A&M University and Blinn College had announced a deal to hire Parthenon-EY, an outside consulting firm, to develop a report that will assess workforce development needs in the Brazos Valley. The report, expected to be completed by May 2017, will be used to help make decisions about future workforce offerings in the Brazos Valley and at the A&M System's forthcoming RELLIS Campus, of which Blinn College is also a partner in. Texas A&M University System vice chancellor James Hallmark stated that the report would help provide information about employment needs in industry sectors. Blinn College District President and CEO Mary Hensley explained that the deal would help position the two institutions' exceptional workforce training capabilities to meet the region's needs²¹¹. The hope is that the report will assist in providing the institutions of Texas A&M and Blinn with a clear and specific idea of what the needs are for workforce

²¹¹ Kuhlmann, Steve. "Texas A&M, Blinn Hire Firm to Assess Needs of Local Workforce." The Eagle, 29 Mar. 2017. Retrieved from http://www.theeagle.com/news/local/texas-a-m-blinn-hire-firm-to-assess-needs-of/article_046c63e3-9ea5-5e5b-be81-d0c89cb1e727.html

industries such as carpentry. In addition, coordinating with local and county government officials is a beneficial strategy to help develop methods that address the workforce needs of the Brazos Valley.

The City of College Station should view this RELLIS Campus deal as an opportunity to coordinate with the institutions of Texas A&M University and Blinn College in order to help meet the needs of the populous in terms of workforce development. Being able to create a form of dialogue between both of these institutions could prove to be mutually beneficial. Helping connect the labor force to educational and training opportunities at RELLIS Campus would help assist College Station's labor force in meeting the future needs of its projected growth, particularly with regard to expanding occupations that require some form of post-secondary education/training. It may be helpful to consider some form of a coalition, with representatives from each organization that can come together and coordinate workforce development efforts to benefit the College Station labor force.

Option III: Potential Innovation

The city of Auburn, Alabama's Auburn Training Connection (ATC) program provides a model that guides students and laborers through technical and vocational career training programs. The City of College Station might wish to consider adopting or adapting some of the features of this model. The ATC is a non-profit workforce development organization created in 2003 through a joint-partnership between the City of Auburn as well as community leaders from industry, education and government. Partners include the local community college and high schools as well as a number of manufacturing/technical firms. Auburn's Workforce Development Taskforce announced plans to initiate the ATC in 2010 after an initial two and a half years of planning²¹².

Purpose of the ATC's formation is due to industries in the City of Auburn that are finding it increasingly difficult to find skilled workers in the surrounding five county areas. The current skills of the local labor force are not in keeping with the changing technology of industry, resulting in a shortage of skilled employees to hire. This unique partnership was created in order to address workforce development needs and issues the city's industries are facing. The program's goal is to provide career opportunities

²¹² City of Auburn, Economic Development. A Focus on Your Future: ATC Career Catalog 2016. 2016, <http://www.auburnalabama.org/EconDevDir/Focus%20on%20Your%20Future.pdf>

for high school students by developing an industrial technology education program at Auburn High School. This requires the involvement of industry, government and educational entities in employment training, skill standards, employee development, and other related activities. The end product of the program is to enhance industrial and manufacturing career opportunity for the area's citizens. These create and implement a workforce development system designed to improve the area's workforce by providing basic skills training programs that will increase the quantity and quality of skills necessary to support Auburn industry/manufacturing and enhance industrial career opportunities for the citizens in the Auburn community²¹³.

Auburn is comparable to the College Station in that is a college town whose main economic driver is a large research university, Auburn University, and is located outside of a metropolitan area anchored by a large American city. Auburn University is also similar to Texas A&M University in that they are land, sea, and space grant universities with historically agricultural backgrounds. This makes the City of Auburn's ATC program appear to be a practical fit for the City of College Station, given that the two are university towns seeking to help assist their labor force in meeting the community's workforce needs. The program provides a unique outline for how a municipality may go about structuring a dynamic approach towards workforce development that can yield potential benefits for local businesses and community residents. A potential innovation would be for the City of College Station to examine the Auburn model and see if there are any methods certain principles of the ATC program could be applied with potential partners in the area. This could include firms in the business sector and or organizations in the education sectors.

Conclusion

The Brazos Valley Workforce Solutions 2017-2020 Integrated Draft Plan's assessment of current and future workforce development in the Brazos Valley is integral for the economic viability of College Station, Texas as it is one of the region's principal centers for population and commerce. Proper gauging of the region's workforce demographics and the projected employment changes over the years provides a framework for the Brazos Valley, and College Station, going forward. Projecting which particular

²¹³ Ibid

fields and occupations are expected to experience growth over the next decade can help College Station better understand the type of labor force it will need in the future as well as the being able to gauge the levels of education and training laborers will need in order to fill those positions. Comparing the occupational projections of the Brazos Valley relative to the state of Texas creates a comparative analysis that has determined, for the most part, that the Brazos Valley region is comparable to the rest of the state in terms of both its occupations and the types of occupations that are expected to grow. The contracts the Brazos Valley Workforce Solutions Board has with state and federal entities to access workforce development programs for laborers through its workforce center system are most beneficial to College Station's workforce, as it will provide for them the resources necessary to assist in accessing employment opportunities. Additionally the Board's strategies of expanding access to employment, training, education, and supportive services, facilitating the development of career pathways, and improving access to post-secondary credentials are essential in helping connect laborers to the region's, and to that effect College Station's, workforce needs.

With the state and future of workforce development in the Brazos Valley changing and growing, the three recommendations going forward should be for the City of College Station: to maintain the status quo with regard to existing programs for workforce development; to engage in meaningful dialogue with Texas A&M and Blinn that could lead toward opportunities for workforce development through the RELIS Campus; or to consider implementing a model similar to the City of Auburn, Alabama's Auburn Training Connection. A non-profit workforce development organization created through a joint-partnership between the City of Auburn and community leaders from industry, education, and government that help to assist connecting laborers with educational training opportunities and eventual employment with local businesses.

Concluding Thoughts



College Station is one of the fastest growing cities in the state of Texas, as well as for the United States in large part to its economic growth and the expansion of the student population at Texas A&M University. While this growth has led to increased ad valorem revenues and new economic opportunities for citizens, it has left a strain on the City's infrastructure. With increased challenges from the state through preemption, and the above-mentioned challenges from exponential population growth, College Station officials will need to look towards creative ways to solve issues of tax revenue, property values, transportation, emergency services and continue to look to ways of incentivizing economic development. This Capstone believes that systematic changes backed with case studies on past successes in other cities with similar demographics and experiences, can offer College Station the opportunity to respond to growth, and continue to prosper into and beyond 2030.

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Appendix

Appendix Table 1: Texas Workforce Commission, Data Link Service, Employment Estimates 2000-2015 College Station-Bryan, TX Metropolitan Statistical Area (Not Seasonally Adjusted)

Employment Estimates 2000-2015 College Station-Bryan, TX Metropolitan Statistical Area Not Seasonally Adjusted									
	2000	2008	2012	2015	2000- 2008	2008- 2012	2000- 2012	2012- 2015	Percent Change: 2012-2015
Mining, Logging, and Construction	4,500	7,000	6,500	7,600	2,500	-500	2,000	1,100	16.92%
Manufacturing	5,800	5,500	5,200	5,400	-300	-300	-600	200	3.85%
Wholesale Trade	1,400	1,800	1,800	2,700	400	-	400	900	50.00%
Retail Trade	9,200	10,000	10,300	13,000	800	300	1,100	2,700	26.21%
Transportation, Warehousing, and Utilities	800	1,400	1,400	1,800	600	-	600	400	28.57%
Information	1,600	1,100	1,200	1,400	-500	100	-400	200	16.67%
Financial Activities	3,300	3,300	3,700	3,900	-	400	400	200	5.41%
Professional and Business Services	4,900	5,600	6,300	8,700	700	700	1,400	2,400	38.10%
Educational and Health Services	7,900	10,000	10,000	12,100	2,100	-	2,100	2,100	21.00%
Leisure and Hospitality	7,600	9,900	10,300	15,500	2,300	400	2,700	5,200	50.49%
Other Services	2,600	2,900	3,100	3,800	300	200	500	700	22.58%
Federal Government	1,100	1,000	900	800	-100	-100	-200	-100	-11.11%
State Government	23,400	25,400	26,200	28,000	2,000	800	2,800	1,800	6.87%
Local Government	8,600	9,900	10,400	11,500	1,300	500	1,800	1,100	10.58%
Total Non-Farm Payroll Employment	82,700	94,800	97,300	116,200	12,100	2,500	14,600	18,900	19.42%

APPENDIX TABLE 2: PROGRAMS PROVIDED BY CNVE

Program Name	Program Type
3 Day Startup	Networking event
Aggie 100	Forum and Networking event
Aggie Entrepreneurship Saturday	Mentoring event
Aggies in Business (AiB)	Consulting business
Entrepreneurial Leadership Award	Competition
Entrepreneurship Bootcamp for Veterans	Experiential training program
Entrepreneurship Empowerment in South Africa	Study abroad program
Raymond Ideas Challenge	Competition
Lunch and Learn	Networking event
MBA Venture Challenge	Competition
Start-up 101	Workshop
Startup Aggieland	Business incubator
Seed Fund	Funding
Silicon Valley Bank Trek	Networking event
Texas A&M New Ventures Competition	Competition

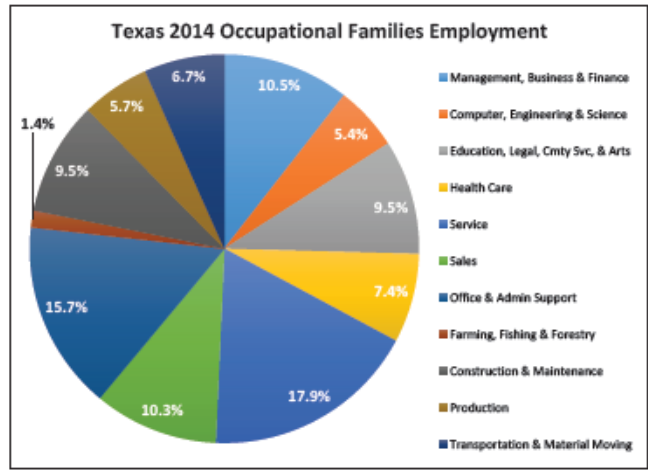
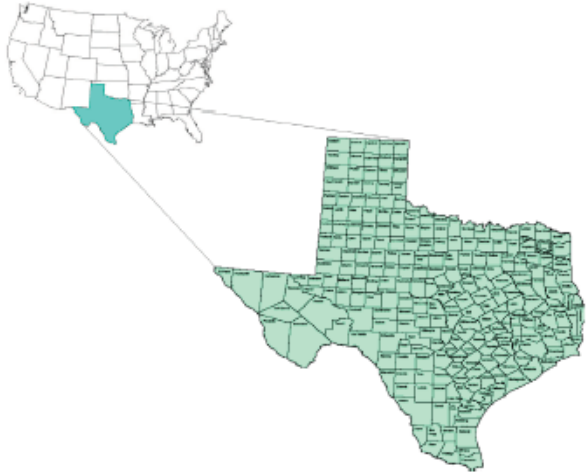
Appendix Table 3. Entrepreneur Programs Provided by College Station and Benchmark Cities

City	College Station, Texas	Bloomington, Indiana	Gainesville, Florida	Urbana-Champaign, Illinois	Ann Arbor, Michigan
Program/organization Type					
Business Incubator	- Startup Aggieland - Research Valley Partnership	- inVenture - Johnson Center for Entrepreneurship & Innovation (JCEI) - Cowork Btown - Blue Burro Workspace	- Gator Hatchery - IdeaGators Co-Working Space - Innovation Hub - Sid Martin Biotechnology Incubator - Santa Fe Gainesville Technology Entrepreneurship Incubator (GTEC)	- EnterpriseWorks - iVenture Accelerator	- Desai Accelerator - SPARK Central Business Incubator - SPARK East Business Incubator - MI-HQ - Workantile - Brickyard - Tech Brewery
Competition	- Entrepreneurial Leadership Award - Raymond Ideas Challenge - MBA Venture Challenge	- B-Start Competition	- Big Idea Business Plan Competition - Gator100 - Cade Museum for Creativity and Invention Prize	- Business Plan Competitions	- Accelerate Michigan Innovation Competition - Great Lakes Entrepreneur's Quest - The Startup Competition
Connecting city and startups	- BioCenter - Garage - Texas A&M Clean Energy program	- Bloomington Economic Development Corporation (BEDC) - Switchboard - Bloomington Urban Enterprise Association++	-	-	- Desai Accelerator - SPARK Annual Meeting - TechArb Student Venture Accelerator
Consulting Service	- Aggies in Business (AiB)	- The Gayle & Bill Cook Center for Entrepreneurship - Small Business Development Center	- GatorNest	- EntreCORPS	- SPARK Business Accelerator - TechArb Student Venture Accelerator
Experiential training program	-Entrepreneurship Bootcamp for Veterans	- B-Start	- Startup Weekend - GatorNest	- Experiential Learning Program in South Africa	- Entrepreneur Boot Camp - TechArb Student

	- Entrepreneurship Empowerment in South Africa		- Entrepreneurship and Empowerment in South Africa - Retail Gator Hatchery		Venture Accelerator
Funding	- Startup AggieLand Seed Fund	- Elevate Ventures - Innovate Indiana Fund	- Social Entrepreneurship Leadership Fund	- IllinoisVENTURES - iVenture Accelerator	- Michigan Pre-Seed Fund 2.0 - Desai Accelerator - Business Accelerator Grants - Jump Start Grants
Forum/Workshop	- Aggie 100 - Start-up 101	- The Gayle & Bill Cook Center for Entrepreneurship - Johnson Center for Entrepreneurship & Innovation (JCEI) - Small Business Development Center	- CEI in Silicon Valley - Entrepreneurship Club - Social Impact & Sustainability Initiative	- Technology Entrepreneur Center (TEC) - iVenture Accelerator	- Entrepreneur Boot Camp - BioArbor - Starting Your Own Business - Tech Trek - SPARK.ed
Mentoring/Networking among students & entrepreneur	- 3 Day Startup - Aggie 100 - Aggie Entrepreneurship Saturday - Lunch and Learn - Silicon Valley Bank Trek	- Switchboard - B-Start - The Gayle & Bill Cook Center for Entrepreneurship	- CEI in Silicon Valley - Entrepreneurship Club - Gainesville Area Innovation Network (GAIN)	- iVenture Accelerator - Academy for Entrepreneurial Leadership - Founders - Pitch	- Entrepreneur Boot Camp - Desai Accelerator - SPARK Annual Meeting - Selling Smart Workshop - The Startup Competition - TechArb Student Venture Accelerator
Study Abroad	-Entrepreneurship Empowerment in South Africa	- Accelerating Global Immersion Leadership Education (AGILE)	- Entrepreneurship and Empowerment in South Africa - JumpstART	- Experiential Learning Program in South Africa	- IPE/CFE Study Abroad

APPENDIX FIGURE 1- TEXAS WORKFORCE COMMISSION. TEXAS OCCUPATIONAL PROJECTIONS.

TEXAS OCCUPATIONAL PROJECTIONS



Occupations Adding the Most Jobs 2014-2024	Jobs
Fast Food Prep & Serving Workers	100,930
Retail Salespersons	90,800
Personal Care Aides	76,870
Registered Nurses	61,610
Customer Service Representatives	59,540
Office Clerks, General	55,150
Waiters & Waitresses	52,240
Cashiers	44,540
Janitors & Cleaners	44,440
Heavy & Tractor-Trailer Truck Drivers	38,970

Occupations with Most Projected Annual Average Job Openings 2014-2024	Jobs
Retail Salespersons	22,340
Fast Food Prep & Serving Workers	19,325
Cashiers	15,515
Waiters & Waitresses	15,070
Office Clerks, General	12,995
Customer Service Representatives	11,870
Registered Nurses	10,815
Personal Care Aides	9,285
Laborers & Freight, & Material Movers	8,815
Stock Clerks & Order Fillers	7,995

Appendix Table 5 Depreciation of multi-family housing stock

Modified Accelerated Cost Recovery System					
year	Average value of 5+ family units (\$)	Cost basis year	Cost basis value	Depreciated cost basis 2016	decrease in value
1994	37800	1994	37800	16734.696	-56%
1995	42300	1995	42300	19433.524	-54%
1996	31000	1996	31000	14779.443	-52%
1997	44800	1997	44800	22164.583	-51%
1998	47900	1998	47900	24592.476	-49%
1999	43400	1999	43400	23122.865	-47%
2000	37900	2000	37900	20954.452	-45%
2001	44600	2001	44600	25589.226	-43%
2002	53400	2002	53400	31794.26	-40%
2003	33700	2003	33700	20822.005	-38%
2004	55100	2004	55100	35328.844	-36%
2005	72000	2005	72000	47906.617	-33%
2006	52700	2006	52700	36388.052	-31%
2007	61800	2007	61800	44281.451	-28%
2008	76800	2008	76800	57105.741	-26%
2009	72700	2009	72700	56096.807	-23%
2010	82800	2010	82800	66300.874	-20%
2011	65400	2011	65400	54344.03	-17%
2012	68200	2012	68200	58808.98	-14%
2013	69600	2013	69600	62280.73	-11%
2014	92100	2014	92100	85524.249	-7%
2015	88300	2015	88300	85089.412	-4%

Appendix Table 6. Bryan/College Station Census Tract data

	Median age 2010	Owner-occupied h/u 2010	Renter-occupied h/u 2010		Median age 2015	Owner-occupied h/u 2015	Renter-occupied h/u 2015		Median age change 10 - 15	Owner-occupied % Change 10 - 15	Renter-occupied % Change 10 - 15
Census Tract 2.02	34.7	1542	339		30.3	1508	549		-13%	-2%	62%
Census Tract 2.03	24.9	169	906		22.6	136	1043		-9%	-20%	15%
Census Tract 2.04	24.8	517	1509		24.8	485	1307		0%	-6%	-13%
Census Tract 2.05	23.8	413	1412		22.3	423	1888		-6%	2%	34%
Census Tract 2.06	24.3	11	1322		21.9	9	1069		-10%	-18%	-19%
Census Tract 2.07	22	415	1368		22.5	347	1519		2%	-16%	11%
Census Tract 2.08	23.8	335	1488		23.3	407	2053		-2%	21%	38%
Census Tract 2.09	24.5	155	1281		22.8	239	1415		-7%	54%	10%
Census Tract 2.10	23.5	153	1089		23.5	153	1290		0%	0%	18%
Census Tract 2.11	22.5	169	2038		22.5	115	2440		0%	-32%	20%
Census Tract 2.12	22	180	773		22.2	308	762		1%	71%	-1%
Census Tract 2.13	22.8	792	1200		29.6	838	1103		30%	6%	-8%
Census Tract 2.14	23	992	1480		25	1037	1511		9%	5%	2%

Census Tract 2.15	21.4	209	282		25.7	122	286		20%	-42%	1%
Census Tract 2.16	40.9	1483	132		40.8	1582	243		0%	7%	84%
Census Tract 2.17	32.8	1532	692		34.5	1235	1702		5%	-19%	146%
Census Tract 2.18	31.5	401	199		39.7	373	279		26%	-7%	40%
Census Tract 2.19	23.9	1251	388		23.6	1426	958		-1%	14%	147%
Census Tract 2.20	30.6	1434	159		34.3	2212	285		12%	54%	79%
Census Tract 2.21	38.8	1295	28		42.7	1446	69		10%	12%	146%
Census Tract 2.22	41.4	732	38		43.7	953	73		6%	30%	92%
Census Tract 2.23	43.3	689	83		32.6	925	290		-25%	34%	249%
Census Tract 2.24	21.4	82	2256		21.1	124	2769		-1%	51%	23%
Census Tract 2.25	25.2	1152	499		24.5	1173	952		-3%	2%	91%
Census Tract 2.26	22.6	262	224		22	278	364		-3%	6%	63%
Census Tract 2.27	19.3	0	29		19.4	0	0		1%	n/a	-100%
Census Tract 2.28	0	0	0		0	0	0		n/a	n/a	n/a

**Appendix Table 7. Building permit data for 2 – 4 family
&
5-plus family units for College Station**

year	2 - 4units	5 + units
1981	1807	903
1982	806	1792
1983	269	304
1984	166	1014
1985	6	142
1986	2	28
1987	0	0
1988	0	0
1989	4	0
1990	0	0
1991	0	0
1992	8	0
1993	164	0
1994	222	716
1995	80	390
1996	84	655
1997	78	260
1998	110	657
1999	154	688
2000	121	499
2001	166	425
2002	209	631
2003	274	454
2004	53	247
2005	189	632
2006	71	594
2007	75	961
2008	112	1232
2009	21	88
2010	4	214
2011	202	623
2012	113	1123
2013	48	804
2014	68	763
2015	157	346
Total	5843	17185

Appendix Table 8:						
Owner-occupied housing units with own children.						
	2010	2011	2012	2013	2014	2015
Under 18 years	4193	4125	4250	4306	4330	4348
Under 6 years & 6 to 17 years	631	745	712	659	707	533
Under 6 years only	1206	1082	1166	1145	1173	1086
6 to 17 years	2356	2298	2372	2502	2450	2729

Quick Facts About College Station Economic Conditions:

- The City of College Station has a population estimated at 109,788 as of January 2017 per the City of College Station’s certificates of occupancy²¹⁴.
- The number of people employed (civilian population 16 years and over) is 54,260²¹⁵.
- As of November 2016, the estimated unemployment rate for the Bryan-College Station area was 3.2%²¹⁶.
- The City of College Station has an educated population with 91.7% of its population age 25 and over having a high school graduate degree or higher (the national average is 85.4%) and 54.6% of the population having a bachelor’s degree or higher (the national average is 28.2%)²¹⁷.

College Station MSA:

The Bryan-College Station Metropolitan Statistical Area (BCS-MSA) is an analysis metric because it is included in the 2013 Economic Development Master Plan from the City of College Station. Finally, this level is selected due to the lowest observable area of interests available through the Texas Workforce Commission, which is at the MSA level.

- The largest occupation within the BCS-MSA is service²¹⁸ with a workforce of 103,200 (35.56%) followed by government with a workforce of 40,300 (13.89%).
- The estimated total workforce in the BCS MSA (which encompasses Brazos, Burleson, and Robertson Counties, 2,100 square miles of land, and 33.5 square miles of water) is 116,200.

College Station Economic Development Plan:

The City’s economic development plan highlights the need to encourage business oriented partnerships between the city and private organizations; ensure infrastructure and public services are available for development opportunities; utilize incentive packages to encourage redevelopment of “underperforming or vacant business sites”²¹⁹; support existing businesses; promote College Station’s marketability to retailers and developers; and recognize Texas A&M University as a significant part of the local economy. The City has pursued its plan to promote College Station’s marketability to retailers and developers by commissioning market analysis and demographic profile studies which:

- Highlight possible target retailers
- The demographic profile by sex, age, education level, and income level for the City of College Station
- A retail analysis which highlights retailers in the primary retail trade area (which identifies retailers for motor vehicle and parts dealers, building material, garden equipment stores, and food and beverage stores)

Quick Facts About College Station Economic Conditions:

²¹⁴ Department of Planning and Development Services. City of College Station: 12 Month Population Estimate (Based on Certificates of Occupancies), 2017, The City of College Station.

²¹⁵ Social Explorer Tables. *American Community Survey 2015 (1-Year Estimates) (SE), ACS 2015 (1-Year Estimates)*, Social Explorer; U.S. Census Bureau, <http://www.socialexplorer.com/>. 2017.

²¹⁶ United States Bureau of Labor Statistics. *Economy at a Glance, College Station-Bryan, TX*, United States Department of Labor, https://www.bls.gov/eag/eag.tx_collegestation_msa.htm. 2017

²¹⁷ Social Explorer Tables. *American Community Survey 2015 (1-Year Estimates) (SE), ACS 2015 (1-Year Estimates)*, Social Explorer; U.S. Census Bureau, <http://www.socialexplorer.com/>. 2017

²¹⁸ The service providing industries “supersector” group consists of three 3 sectors (trade, transportation, and utilities (1), retail trade (2), transportation and warehousing (3), utilities (4), information (5), financial activities (6), real estate/rental and leasing (7), professional and business services (8), education and health services (9), Leisure Hospitality (10), accommodation and food services (11), and other services (excluding public administration) (12)) (Bureau of Labor Statistics 2017)

²¹⁹ CDS Spillate. Economic Development Master Plan Phase Two—Evaluation of Opportunities and Constraints College Station, Texas, August 2012, The City of College Station, College Station, TX.

- A primary retail trade area psychographic profile (which consists of a tapestry segmentation profile that “classifies US neighborhoods based on their socioeconomic and demographic compositions.”)²²⁰

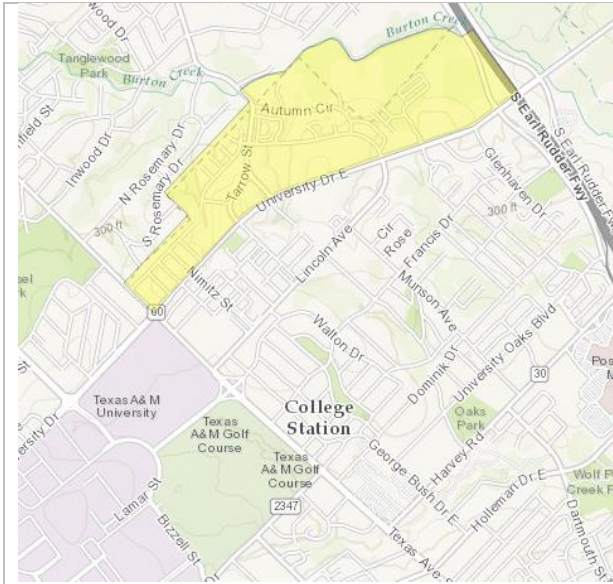
The City of College Station’s Economic Development Department has expressed concerns about student retention, expansion of the sales tax base, and attracting industry/opportunities to the city. The following analysis:

- Shows College Station’s “Profile” when Compared to other “College Towns”
- Presents what multinational Industries/Firms seek when making location decisions
- Provides insight into utilizing university resources/partnerships in creating/attracting industry
- Provides reasons for graduate flight and strategies for retention of graduates.

Provides a Market Analysis Case Study Review with accompanying

²²⁰ The Retail Coach. *Primary Retail Trade Area Psychographic Profile College Station, Texas*; The Retail Coach. *Secondary Retail Trade Area Demographic Profile College Station, Texas*; The Retail Coach. *Competing Communities Study College Station, Texas*

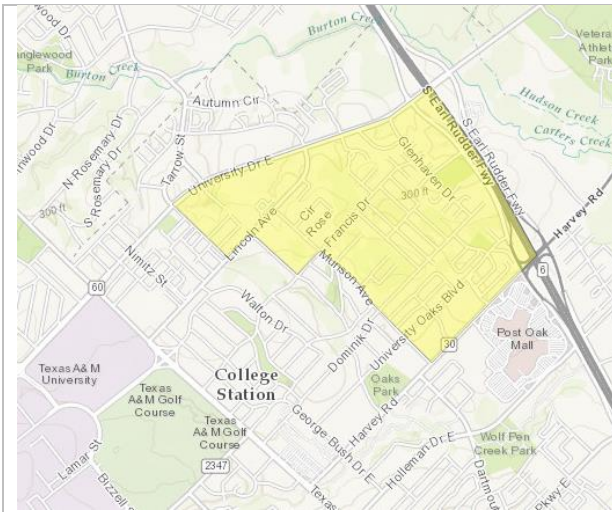
CENSUS TRACT PROFILES



Tract 13.01

- The number of owner-occupied housing units characterized by age of structure above 27.5 years (recovery period) is equal to 33 out of 136.
- The decrease between 2010 and 2015 in owner-occupied units corresponds to 33 units.
- The number of owner-occupied family households with own children under age 18 has a decrease from 42 to 7 or 35 families (73%). The general decline in number of owner-occupied households constitutes 33 from 169 to 136 units.

https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5_YR_B25036&prodType=table



Tract 13.02

- Out of 485 owner-occupied buildings, 71% or 346 buildings exceed the recovery period in 2015. For the renter-occupied structures the corresponding index is equal to 72% or 940 structures out of 1307.
- The number of owner-occupied households has decreased from 517 in 2010 to 485 in 2015. At the same time, the number of owner-occupied family households with own children under age 18 has an increase from 108 (2010) to 139 (2015) or 31 families (29%).

https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B25036&prodType=table
https://factfinder.census.gov/ces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B25115 &prodType=table



Tract 14

- Out of 9 owner-occupied buildings 9 exceeded the recovery period in 2016, whereas for the renter-occupied buildings the number corresponds to 671 or 63% out of existing stock.
- The number of owner-occupied family households with own children under age 18 is equal to zero during period of 2010 to 2015.

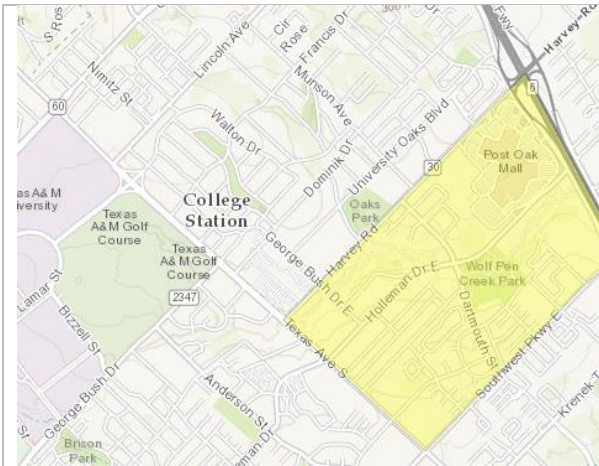
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Tract 16.01

- For the owner-occupied housing units, 304 (88%) units were built before 1979 and exceeded the recovery period in 2015. Whereas, the analogous index for the renter-occupied units corresponds to 67% (1019) out of 1519 housing stock.
- The number of owner occupied housing units has declined from 415 to 347, or 16% from 2010 to 2015.
- Number of owner-occupied family households with own children under age 18 has a decrease from 62% (2010) to 53% (2015) or 9 families (15%).
- Presumably, aging housing units become less attractive for owners, causing conversion of owner-occupied into renting units.

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Tract 17.01

- The age of owner occupied housing units in the area is not out of recovery period. Whereas for the renter-occupied units the percentage of buildings exceeded recovery period corresponds to 17% or 410 units out of 2440.
- The number of owner-occupied family households with own children under age 18 has a decrease from 48% (2010) to 47% (2015).
- The number of owner occupied housing units has decreased from 169 to 115, or 32% from 2010 to 2015.
- Thus, due to close location to university the decrease of owner-occupied households could be caused by constant inflow of student/renter population.

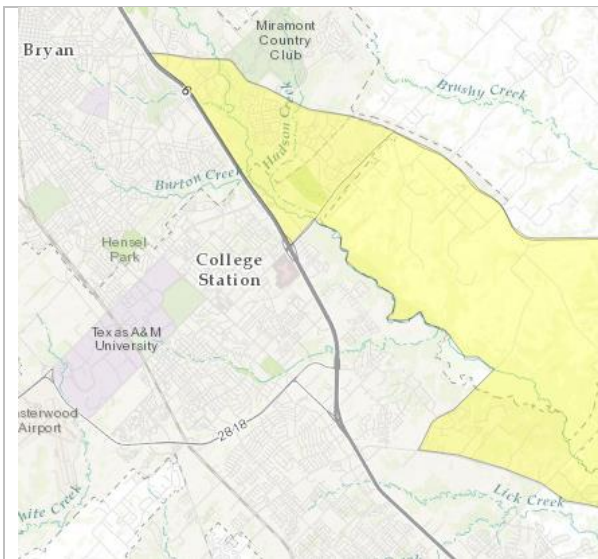
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Tract 18.04

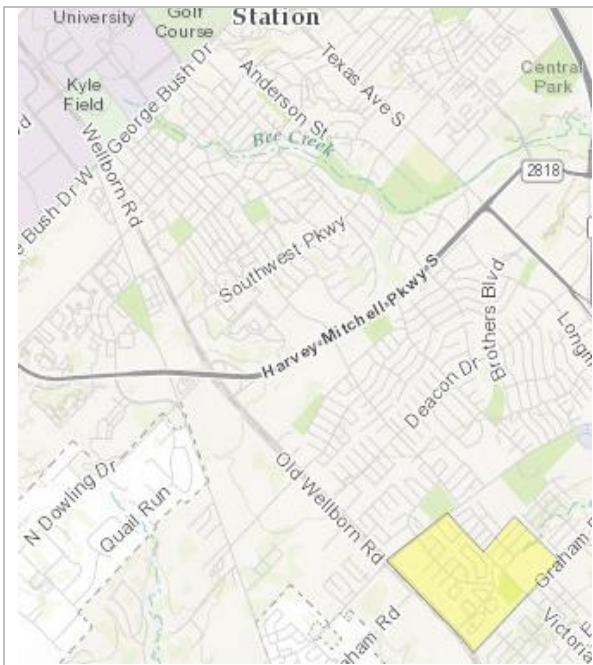
- Out of 122 owner-occupied housing units 22 exceed the recovery period. The renter-occupied housing stock is out risk of being deteriorated in near 5-year period.
- The number of owner-occupied family households with own children under age 18 has a decrease from 107 (2010) to 49 (2015) or 58 families (54%).
- The number of owner occupied housing units has a decline from 209 to 122, or 42% (87 units).
- The decline in owner-occupied households possibly happens due to increase of student population and conversion of houses into rental units.

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Tract 20.02

- Out 1235 owner-occupied housing units 27% or 334 buildings exceeded the recovery period. The corresponding index for renter-occupied buildings is equal to 9% or 163 out 1702.
- The number of owner-occupied family households with own children under age 18 has a decrease from 565 (2010) to 431 (2015) or 134 families (24%).
- The number of owner occupied units has decreased from 1532 (2010) to 1235 (2015) or 297 units (19%).
- The significant increase of renter-occupied units by 146% that took place from 2010 to 2015 might be result of both conversion of owner-occupied units and construction of new renter-occupied buildings.
- https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B25036&prodType=table

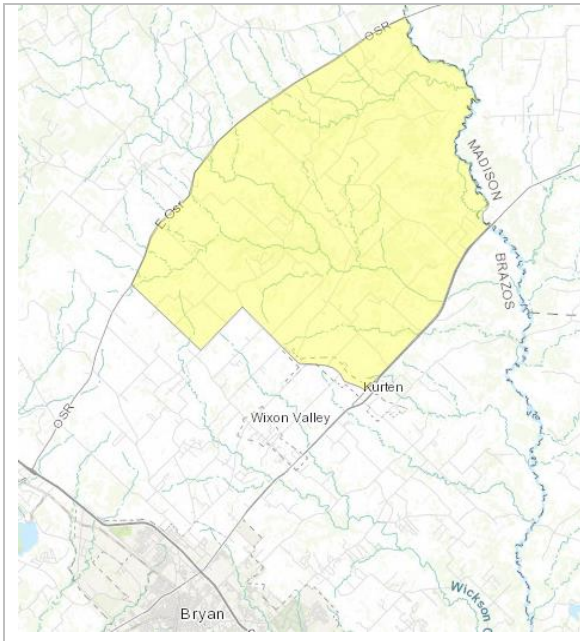


Tract 20.06

- Out of 373 owner-occupied units only 30 or 8% exceeded the recovery period in 2015. The analogous index for renter-occupied units corresponds to 5% or 14 units.
- The number of owner-occupied family households has declined from 401 (2010) to 373 (2015), or 28 units (7%).
- The number of owner-occupied family households with own children under age 18 has a decrease from 121 (2010) to 81(2015) or 40 families (33%).
- The period after 2010 was not characterized by new construction of renter-occupied buildings; therefore, the increase of rental housing might have resulted from conversion of owner-occupied units.

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Bryan tracts



Tract 1.03

- Tract has a decrease in number of owner-occupied housing units of 3.3% or 20 units since 2010.
- The number of renter-occupied units is also in decrease of 5% or 4 units.
- The number of owner-occupied households with own children has decreased by 6.4 % or 13 units.

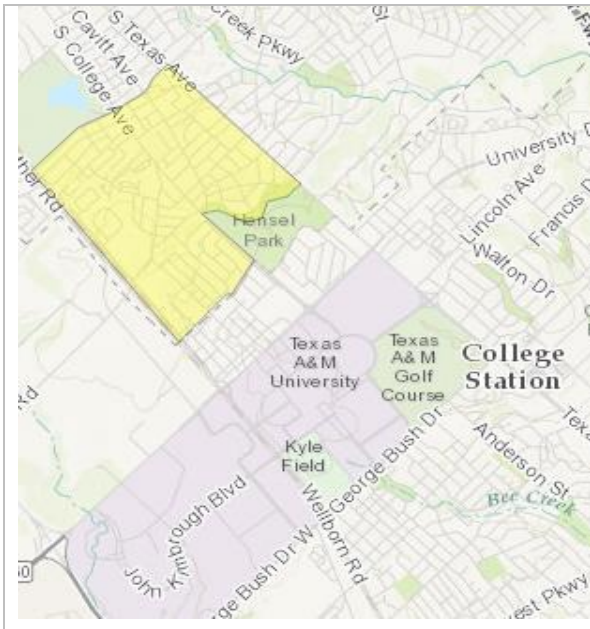


Tract 4

Tract has a decrease in number of owner-occupied housing units of 14% or 128 units since 2010.

The number of renter-occupied units is in increase of 34.1% or 197 units from 2010.

The number of owner-occupied households with own children has slightly decreased by 0.5% or 1 unit.



Tract 10

Tract has a decrease in number of owner-occupied housing units of 33.1%, or 235 units since 2010.

The number of renter-occupied units is in increase of 38.1% or 798 units from 2010.

The number of owner-occupied households with own children has decreased by 24.1% or 40 units.