HCC FACILILITIES MASTER PLAN

CENTRAL COLLEGE

INDIVIDUAL SUMMARY BY DEMOGRAPHICS

DRAFT COPY

1 DRIVERS

For HCC to effectively expand to meet future demand, it must develop an understanding of the changing landscape in which it finds itself. The location of future facilities is critical to the successful delivery of services to the community. The FMP, used in combination with HCC's strategic plan, which will be published later in the year, plays an integral part in the overall planning process by providing a guideline for how to evaluate and best identify prime facilities locations.

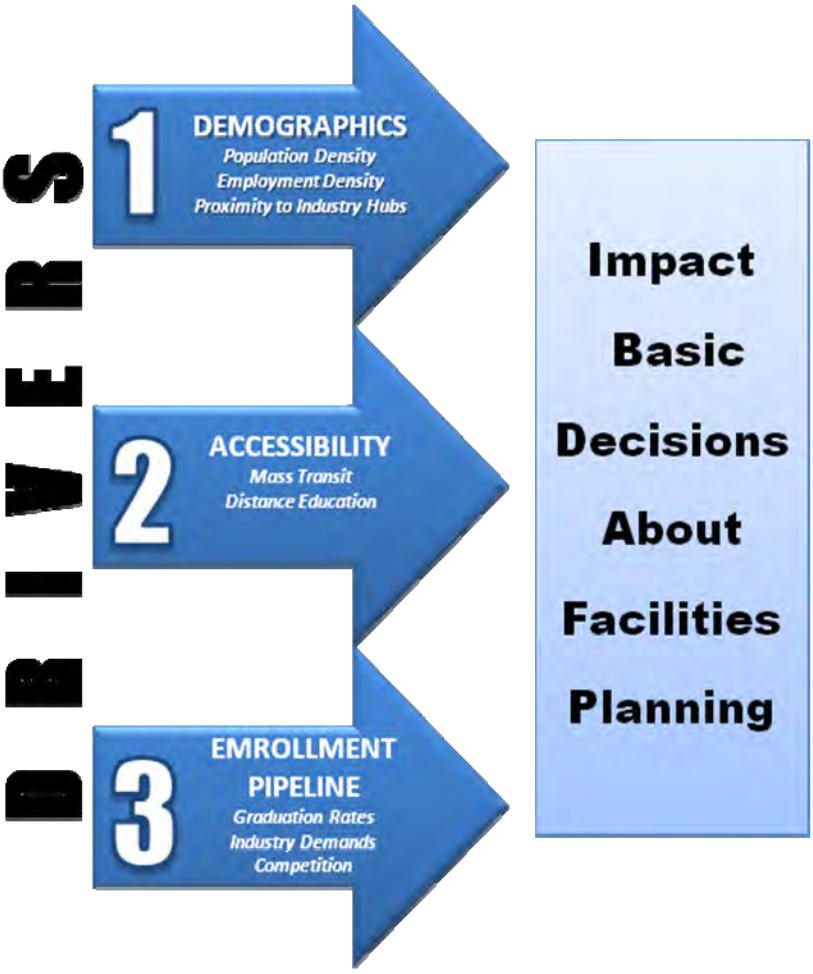


Figure 8: Facility Location Drivers

When researching factors that influence facility development at HCC, many factors emerged including:

- Population
- Economy
- Transportation Access
- Economic Growth
- Facilitate Organic Growth
- Community Redevelopment
- Feeder Patterns
- Funding
- Strategic Planning
- Programming
- Educational Delivery System
- Enrollment
- Return on Investment
- Proximity to Other HCC Campuses
- Take what you can get
- Budget
- Competition
- Benchmarking

Ideally, the research behind the need for a new facility would include all of these factors along with consideration of the needs of the entire system to prioritize locations. To narrow the scope of the discussion, those elements that have the most significant impact on facility development have been short listed into the chart to the left.

By examining and truly understanding changes in the three short listed drivers**,** HCC will be able to carefully plan and maintain the managed growth of the College. Once identified, these drivers were then reviewed for accuracy by planning and development professionals at the City of Houston and the Houston-Galveston Area Council, as well as, noted researchers in the areas of population and urban growth. These drivers are represented by tangible data that is collected periodically by reliable sources and will be periodically updated and available for reanalysis and incorporation into the model.

Using this report, decision makers can assess the best location for future facilities in keeping with the College's goals and VISION. The FMP is one tool in the overall planning strategy and must be considered in connection with HCC's overall VISION, strategic, academic, and financial plans. Where facilities are located, their composition, and how they function must reflect the goals of the institution and further those objectives.

1.1 Demographic

Demographics in the HCC service area and changes to the service population will drive questions of facility location and type. Associated with demographics are the issues of programming (which is covered in the strategic plan), current utilization and capacity (studies are recommended in both areas). Students frequently attend a specific campus based on proximity to their homes or workplace. Therefore, the two greatest factors that make up questions of demography, as they relate to the future needs of HCC, will be residential density and employment density - determined by how many people are living or working in an area.

1.1.1 Population Density

The key to understanding the demographic outcomes for the region are most important in terms of population densities. Concentrations measure the number of people in a defined area. While forecasts predict increases in populations across the board, it is where this increase is sharpest that is most important because it will have the greatest impact on facilities planning.

The Brookings Institute has labeled Houston as one of the "Next Frontiers" based on its high growth, high diversity and high education compared to the 100 largest metro areas in the US – according to the Brookings Metropolitan Policy Program. The HCC service area contains almost all of Harris County and parts of Fort Bend and Waller Counties. The service area is home to over 2 million residents. In context with the HCC service area, the population density in the year 2010 shows the highest rate of density:

- inside the 610 loop,
- southwest part of Houston inside Beltway 8 between I-10 and US-90A,
- satellite cities such as Missouri City, Sugar Land, Katy and
- around I-45 corridor between Beltway 8 and 610 area.

The tables below breakdown the 2009 population by gender for HCC and of the Central College.

POPULATION INFORMATION, 2009 EST.	
Total Population	2,140,484
Adult Population	1,566,791
Male	50.3%
Female	49.7%

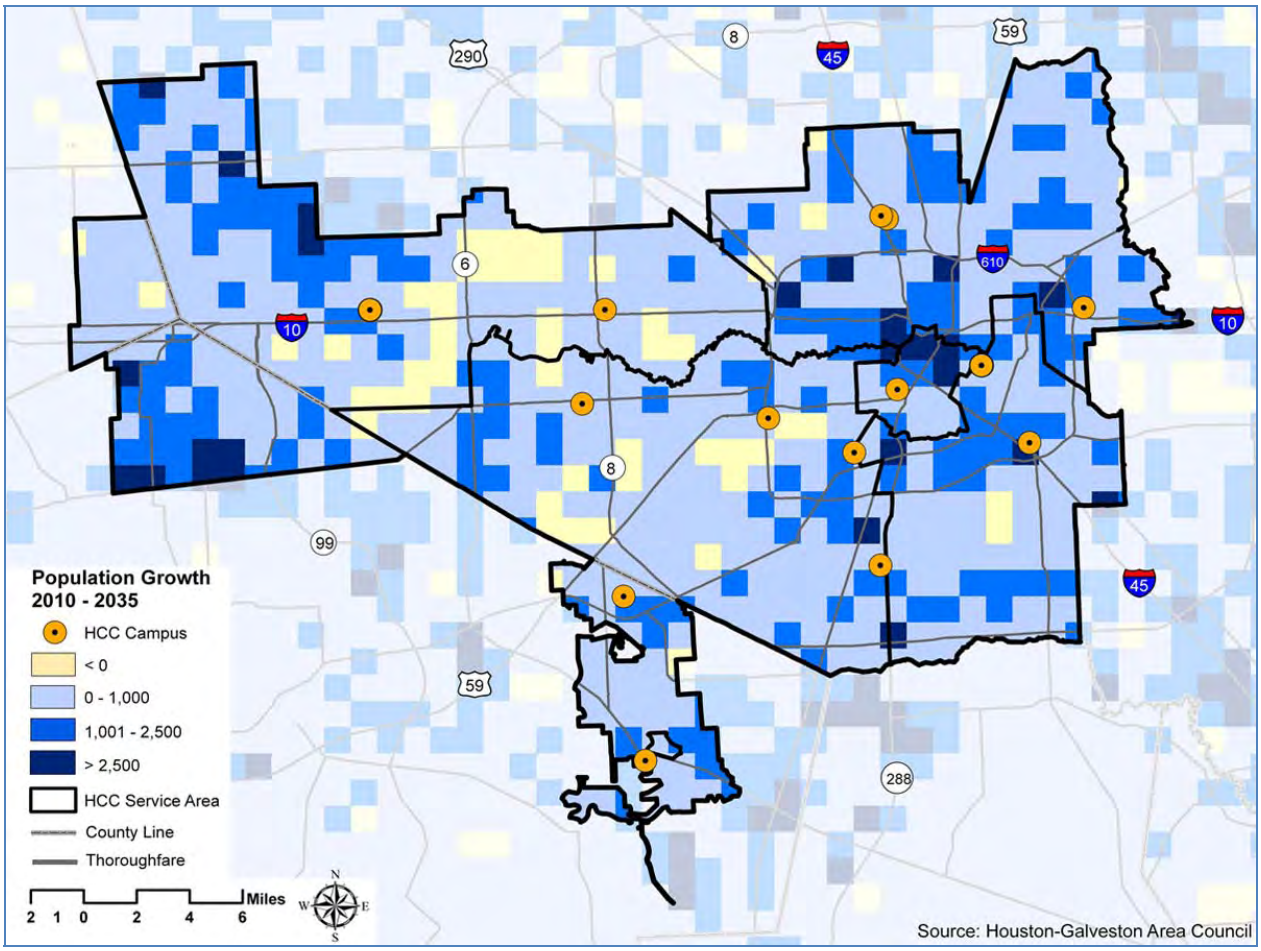
Table 11: Houston Area Population Information – H-GAC 2035 Regional Forecast

POPULATION IN HCC COLLEGES			
HCC College	**Current Enrollment**	**2010**	**2035**
Central	72,593	82,914	103,678

Table 12: HCC Central College Enrollment – H-GAC 2035 Regional

Population Growth (change) between the years 2010 – 2035:

Simply looking at the population density will not help us understand the areas experiencing the largest growth. We have to understand the growth pattern and identify areas that will undergo change. In the map below, the dark blue areas highlight the highest population growth between 2010 and 2035.



Map 2: Population Growth between years 2010 – 2035 (Data source: H-GAC)

Placement close to population growth centers creates an opportunity to capture:

- Students requiring GEDs
- Early College High School students
- The unemployed seeking training/retraining
- Students that may require public transport to access education

1.1.2 Employment Density

Houston and its surrounding ETJ are home to more than 1.7 million jobs. Houston's employment growth has exceeded the national employment growth for several years. By 2035, employment will see a 40% increase to 613,000 jobs and the ETJ will see an increase of 160,000 jobs or a projected 50% increase. The following charts show job growth expectations for the HCC Service Area.

HOUSTON AREA EMPLOYMENT 2007 AND 2035		
	2007	**2035**
City	1,531,000	2,115,000
ETJ	160,000	320,000

Table 13: Employment Growth – H-GAC, 2035 Regional Growth Forecast

JOBS BY HCC COLLEGES: 2010 AND 2035		
HCC COLLEGES	**2010**	**2035**
Central	213,000	246,000

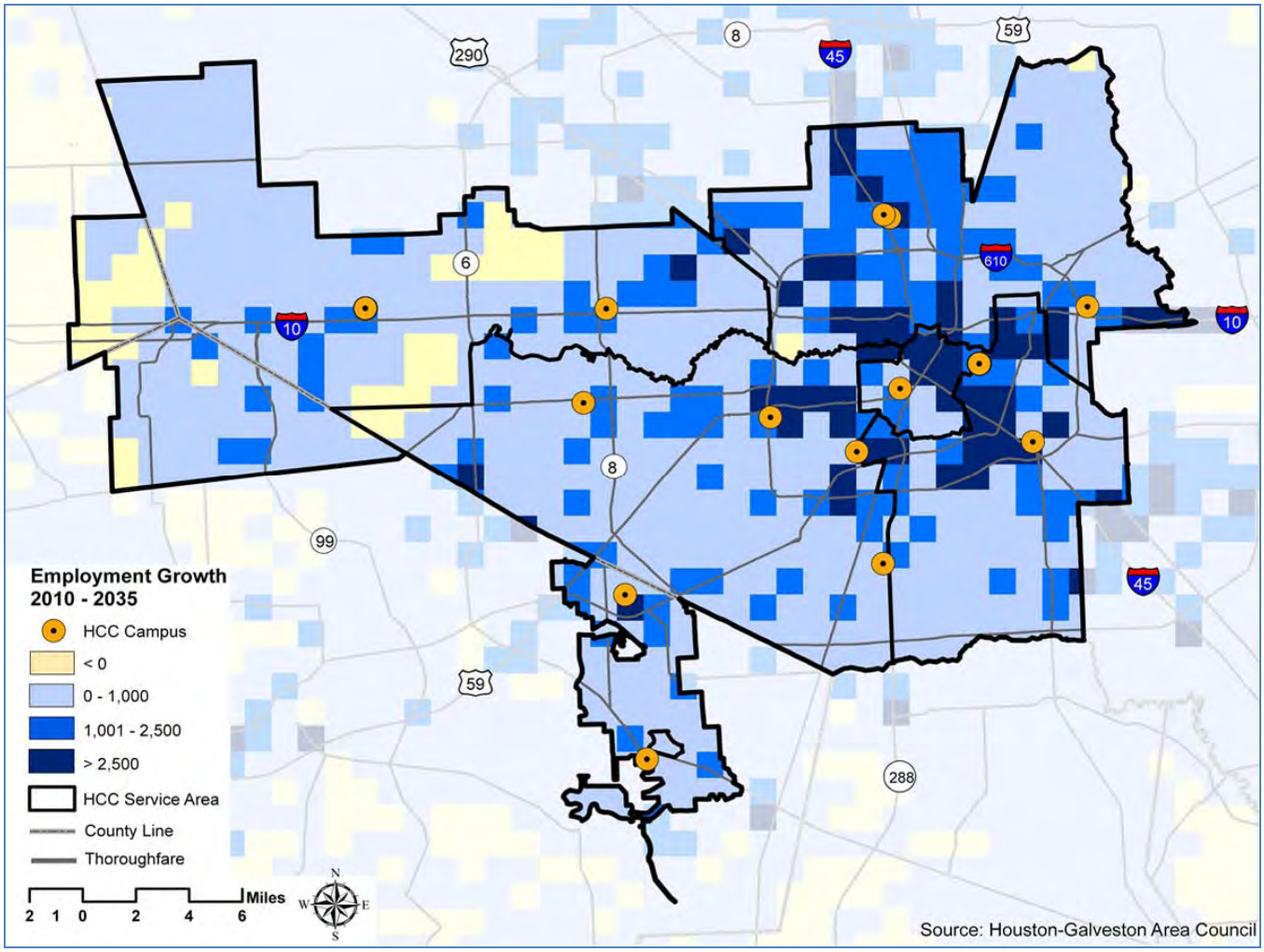
Table 14: Job Growth in Central College - H-GAC

Employment density in the year 2010 shows high employment concentration in Downtown. By 2035, the growth is even more significant around the I-45 corridor north of downtown towards IAH. I-45 North corridor connecting to IAH is also showing strong signs of employment growth which is concurrent with the population projection.

Because HCC students are more likely to attend school near where they work or live, it is important to note where the major employment centers of Houston are located. As traffic and travel times become increasingly important to Houston motorists this connection will only become more pronounced.

Employment Growth (change) between the years 2010 – 2035:

The map below outlines the areas experiencing the highest employment growth levels between 2010 and 2035.



Map 3: Employment Growth between years 2010 – 2035 (Data source: H-GAC)

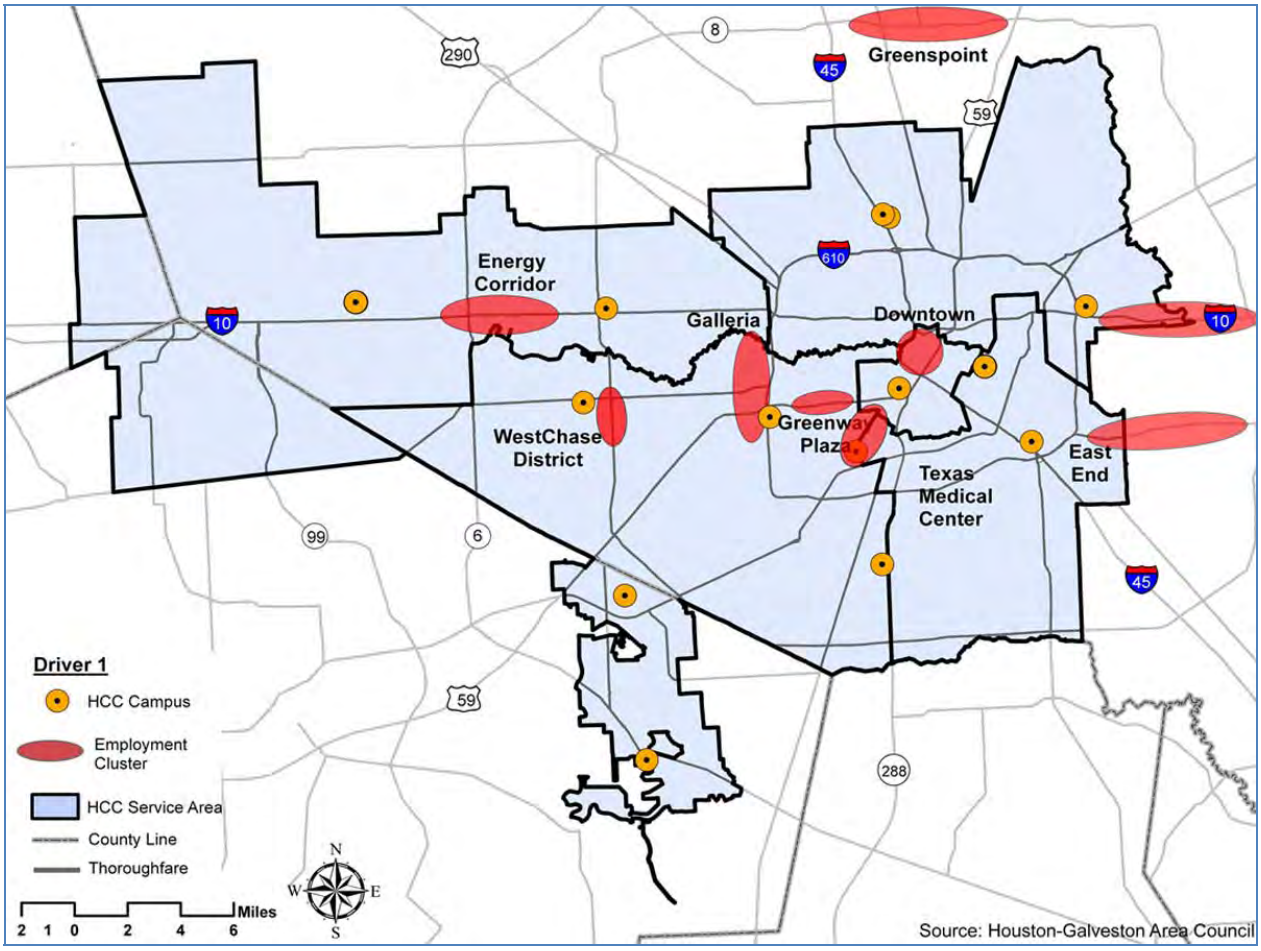
Placement close to employment growth centers creates an opportunity to capture:

- individuals seeking convenient training to upgrade their skill set,
- individuals seeking leisure learning opportunities,
- creates a useful venue for corporate retreats and
- provides partnership opportunities with industry leaders to service their training requirements.

1.1.3 Proximity to Industry Hubs

Houston is the center for many key industries including health care, aerospace, finance, petrochemical and oil refining. These industries are generally centralized in employment and industry clusters around the City and also serve as feeders for many potential students who are looking to advance their professional development through part-time enrollment and technical training courses. These employment clusters include Downtown, the Texas Medical Center, the Galleria, Greenspoint, Westchase, Clear Lake, Greenway Plaza, and the large petro-chemical and refinery centers located mainly on the east side of the City. As Houston continues to evolve, new hubs will develop and others will decline. Tracking these changes is important in charting the growth of HCC.

The HCC campus system is spread out over a considerable geographic area. The Central Campus is well placed in the downtown area and is easily accessible to the Mid-Town and inner City population centers and Downtown and Midtown business districts. Coleman College is located in the Texas Medical Center and offers specialized programs for the healthcare industry. The Spring Branch and Westgate campuses are situated near the employment hubs in the Energy Corridor, while the industrial and Port areas of the East End are near both the Northeast and Eastside Campuses.



Map 4: Employment Clusters

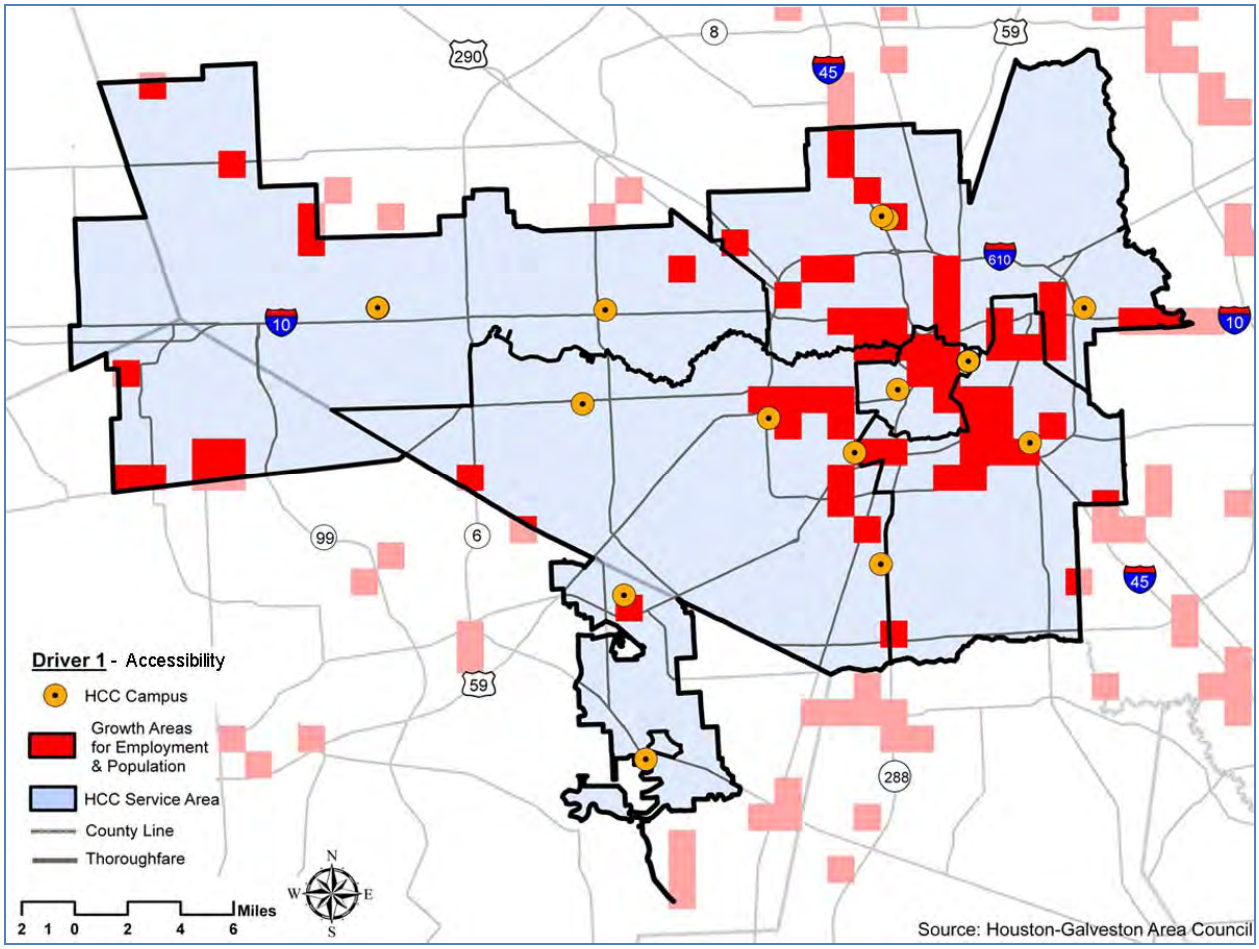
Downtown

Downtown Houston is home to the headquarters for several fortune 500 companies. Comprised of 108 square miles, it encompasses the urban core of Houston and is bound by US-59, I-45, and I-10. Downtown can be further sub-divided into the Theater District, Skyline District, Historic District, Sports District, and Midtown.

1.1.4 Summary of Demographics – Driver 1

The two greatest factors related to demographics will be residential density and employment density - determined by how many people are living or working in an area. Students attend a specific campus largely based on proximity to their homes or workplace, thus making it important to track the changes in these demographics to uncover the most likely sources of future enrollment.

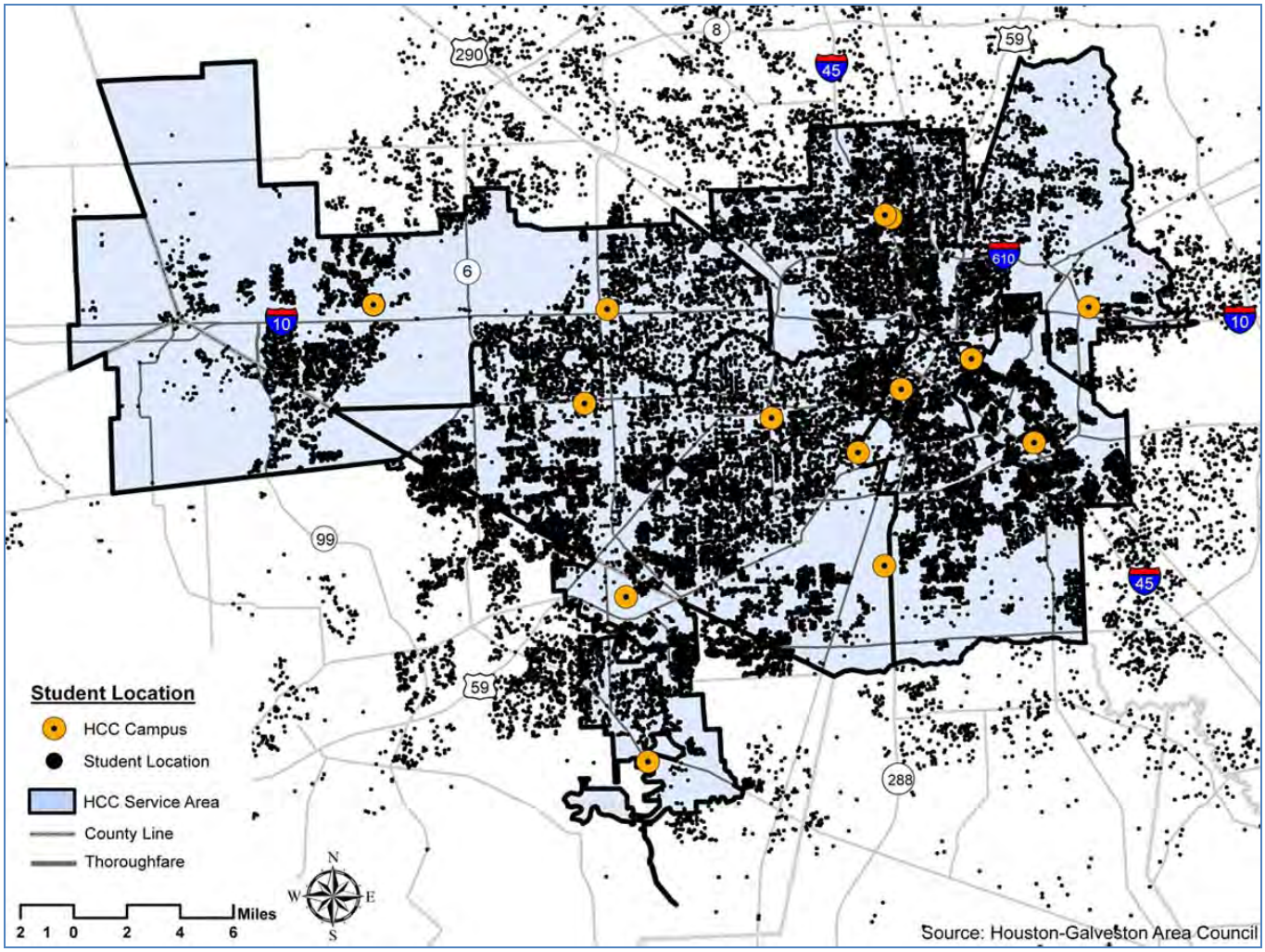
We have defined Driver 1 (Demographics) as combining the growth in population with employment density and refining them to the most significant areas of impact. It yields a concentrated view of critical growth areas. These areas are highlighted in the map below. These will be the focal points for HCC when considering placement of new facilities and possible expansion of existing facilities in order to leverage the projected growth.



Map 5: Summary of Driver 1 impact on future HCC site selection

1.2 Accessibility

We have defined Driver 2 (Accessibility) as a combination of transportation connectivity to future HCC campuses and trending growth in distance education as pertains to programming and campus planning. The dot density map below shows the outline of the HCC service area along with current campus locations and the concentration of HCC students represented by their home address. This map highlights the proximity of students to the HCC campuses and the number of students that come from outside the HCC service area. As the Houston area continues to expand, the commuter rail and light rail network is increased and HCC attracts more out of district students, it is vital to understand the role of transportation and the importance of providing students with necessary accessibility to transit hubs and employment centers.



Map 6: Student Location year 2009 - HCC

Approximately 80% of HCC's student population lives in-district. The dot density map above shows that many also live in close proximity to an HCC campus. However, 20% of students live outside the HCC service area which suggests that locating future campuses near transit, light rail and freeway corridors would provide more accessibility to the students to get connected with the HCC campuses and may result in increased enrollment.

Accessibility takes into account the ease with which people can take advantage of HCC services and the degree of convenience or difficulty students experience utilizing facilities. Reviewing accessibility is driven by an examination of area transportation infrastructure and the internal role of non-traditional and online course offerings. Generally speaking, the more choices students have for *how* to get to campus, the more positive an experience they will have.

1.2.1 Mass Transit

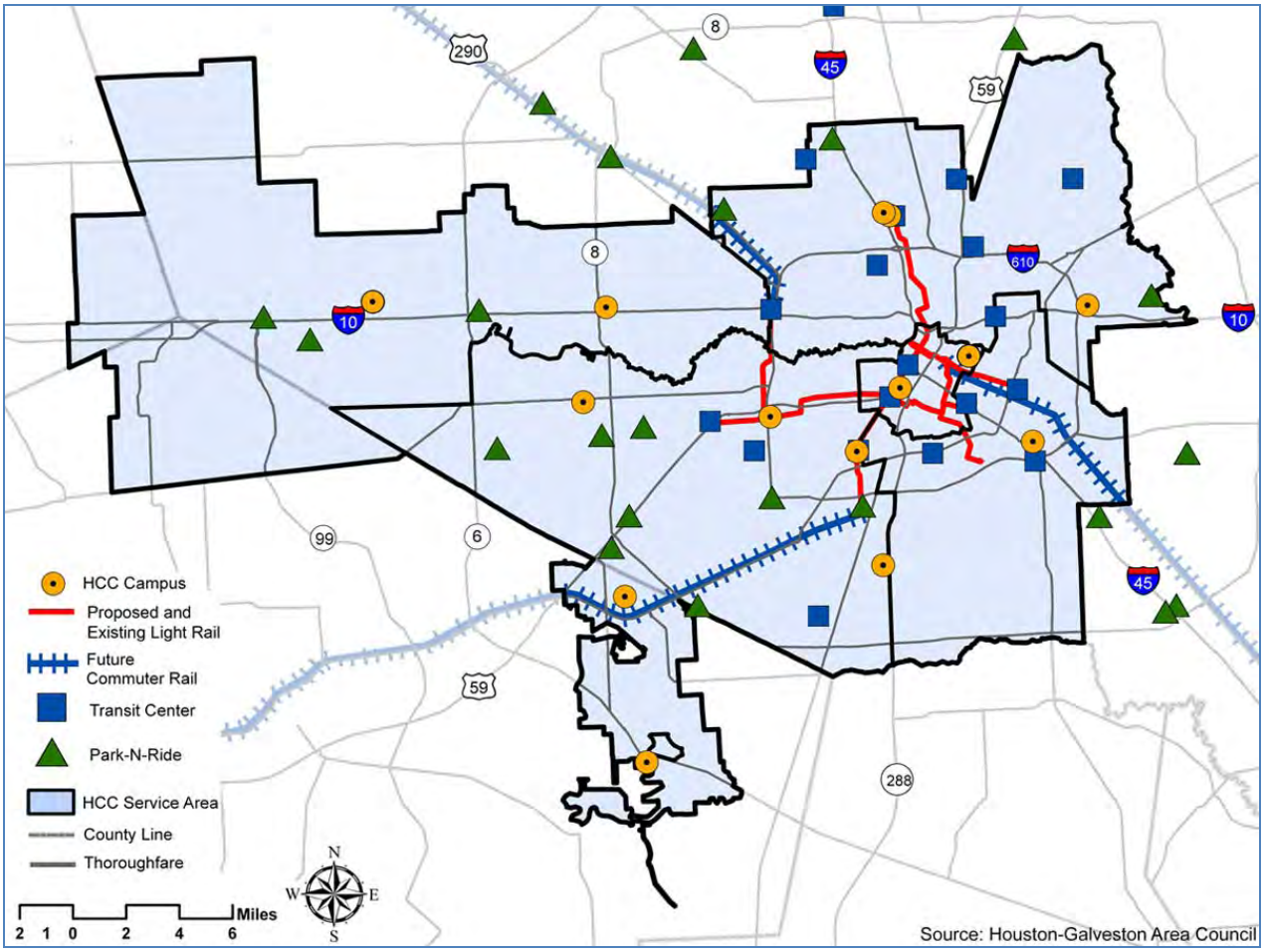
For many students the cost of commuting is an important factor in deciding on whether or not to attend higher education classes. The convenience of mass transit located near HCC facilities can increase access to higher education opportunities especially for economically disadvantaged students who may not have means for private transportation.

According to the H-GAC City Mobility Planning Travel Demand Model the number of work trips is expected to increase by 67% during the study period (through 2035) and travel time in the City and ETJ is expected to increase by two hours. Plans for the future transportation infrastructure expansion to address this projected growth include an additional 14% increase in overall street capacity over the next 25 years including 8,256 street lane miles or 13% in the City and 14,705 or 23% more street lane miles in the ETJ.

With increased travel times expected, accessibility issues will be an even greater concern as traffic changes occur. Students will increasingly need to access classes near where they work and live especially during peak commute hours. Many more students may choose to bypass traffic by utilizing mass transit options that can carry them from work or home to class in order to avoid transit delays.

Planned Transit Network Additions

In addition to the extensive METRO bus network across the greater Houston area, the freeway system and commuter rail and light rail are all critical for HCC students. The map below outlines the Houston transportation network with existing and planned transit facilities. The additional mass transit will provide greater mobility for all Houstonians and has the potential to increase enrollment.



Map 7: Light-Commuter Rail Corridors, Park-n-Ride, Transit Center Locations - H-GAC

Light Rail

The following lines are anticipated to be opened by 2012 as part of the METRO Solutions transit system expansion.

LINE NAME	DISTANCE	ROUTE
Southeast/Green Line	6.1 mi (9.8 km)	Smith Street in Downtown Houston to the Palm Center at MLK & Griggs Street
University/Orange Line	11.3 mi (18.2 km)	Hillcroft Transit Center to the Eastwood Transit Center

Table 15: Metropolitan Transit Authority of Harris County

The current plans for proposed METRO light rail lines reveal the possibility of serious inter-connectivity between certain campuses. The HCC Administration building, HCC Central Campus, and the Coleman College will continue to enjoy access from the Main Corridor, but will have additional access from students using the new University Corridor located near the Wheeler station.

1.2.2 Distance Education

As online learning becomes more available and more attractive to students, increased enrollment in online classes will have an impact on the need and design of future facilities. It is important to note that although much of online learning is done without the use of a traditional classroom environment, preliminary research shows that students will continue to desire face-to-face interaction with faculty and other students, they will also use testing facilities and visit the campuses for administrative services. Matching the ease with which students can access courses and services online and in the physical space will present a number of challenges and opportunities in terms of campus planning.

A recent survey published by the Instructional Technology Council in March of 2010 on Distance Education showed that from Fall 2007 to Fall 2008 (the most recent full year of available data) campuses reported a 22% increase for distance education enrollment while on-campus enrollment for the same year only reported a 2% increase nationally in enrollment. Another study conducted by the Sloan Foundation reported a 17% growth in distance learning enrollments while on-campus enrollment only increased by 1.5% (Allen & Seaman, January 2010). The Sloan Foundation study reports that over one-quarter of all higher education students are now taking at least one online course. There has been much speculation about when this growth will plateau, but it is expected to continue for the near future.

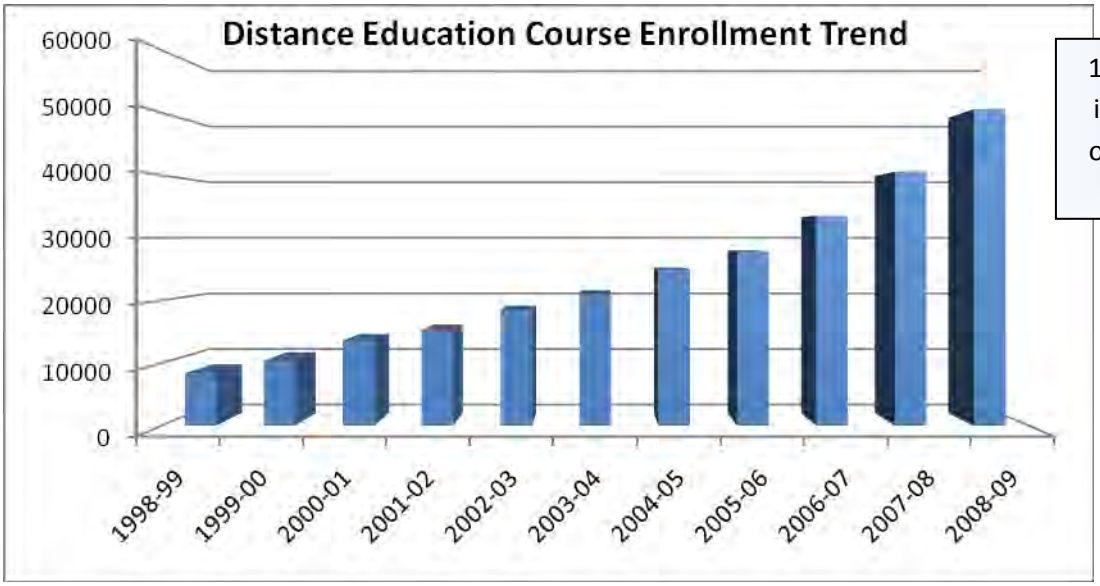


Chart 2: HCCS Distance Education Records, 1998 to 2003, HCC OIR DataMart Files, Fall 2003 to Summer 2004; End of Term 2005 & 2009

HCC distance education trends follow this same national movement with increasing numbers of students enrolling in distance education courses. The undisputed growth in online learning will impact facility utilization therefore it is important to maintain accurate utilization records to determine the need for new facilities. In addition to determining need, the composition of facilities will also be impacted as online courses currently require some testing at on-site testing centers, students continue to seek administrative services on campus as well as gather for study groups or to socialize.

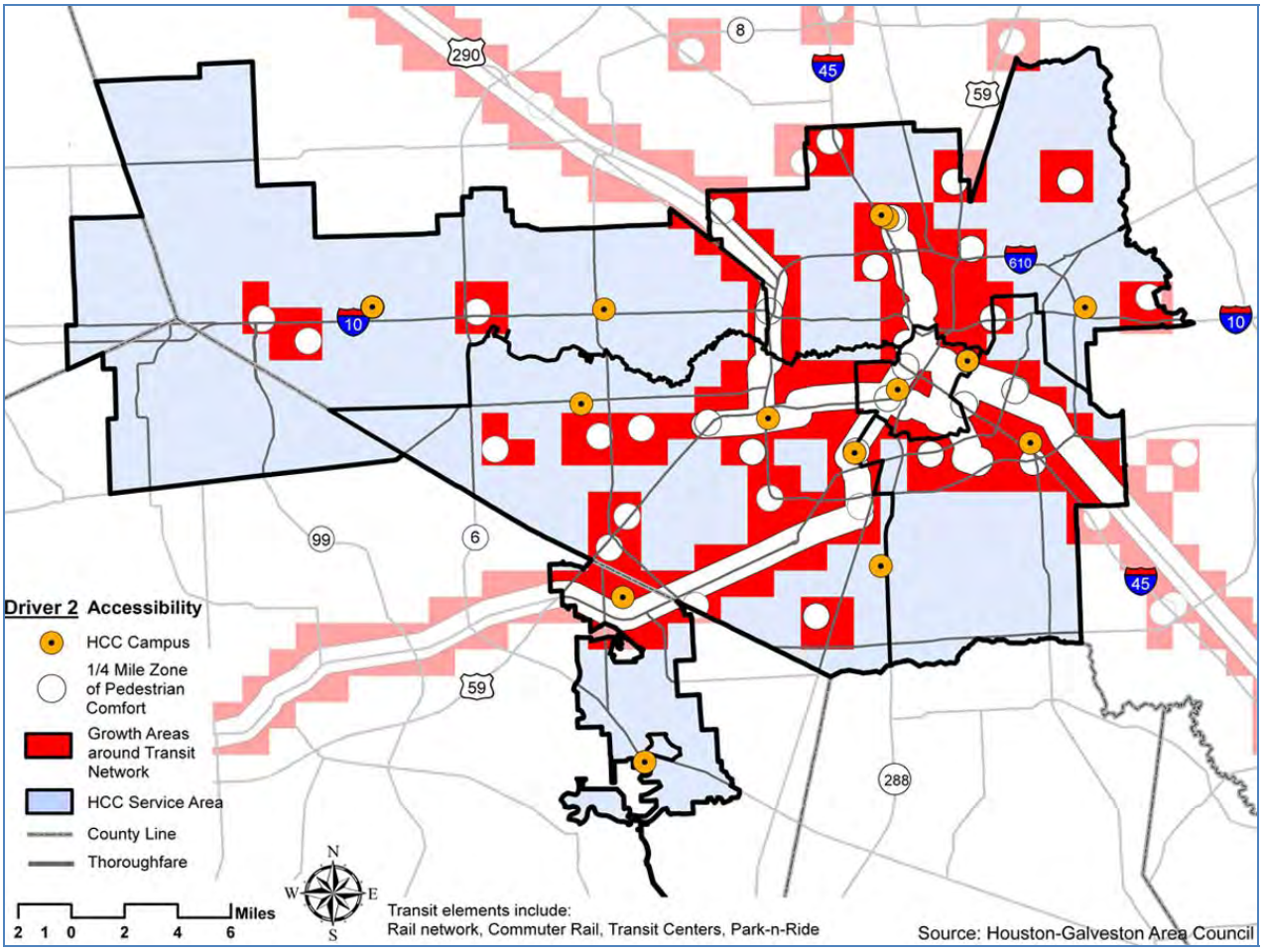
Recommended utilization and capacity studies will help to further define how existing space is being utilized and how to optimize it. By combining various statistics, these reports should help to forecast the need for new facilities as well as help to define their composition to best address the needs of the growing population of online students. The role of technology as it applies to adequately developing the facilities for this purpose should be a particular focus within the proposed studies.

1.2.3 Summary of Accessibility – Driver 2

Accessibility takes into account the ease with which people can take advantage of HCC services and the degree of convenience or difficulty students experience utilizing facilities. Accessibility to transit hubs and employment centers will become increasingly important as the Houston area continues to expand, the commuter rail and light rail networks are increased and HCC attracts more out-of-district students.

As online learning becomes more available and more attractive to students, increased enrollment in online classes will have an impact on the need and design of future facilities. On-line students will also need to travel to various campuses from time to time for testing, study groups, attend events or to address administrative issues therefore transportation and overall accessibility will impact them as well as the traditional students.

Accessibility is a significant factor in enrollment and must therefore be considered in facility location. The map below outlines the existing transportation network i.e. park-n-ride lots, transit centers and light rail and commuter rail networks that is being planned along with a quarter mile buffer around those transportation elements. The resulting red areas on the map are the recommended locations for new facilities to be considered. A quarter mile buffer is a standard urban planning measurement as research has proven that individuals are more likely to take transit if the destination is located within buffer zone as the distance is considered walkable.



Map 8: Summary of Driver 2 impact on future HCC site selection

1.3 Enrollment Pipeline

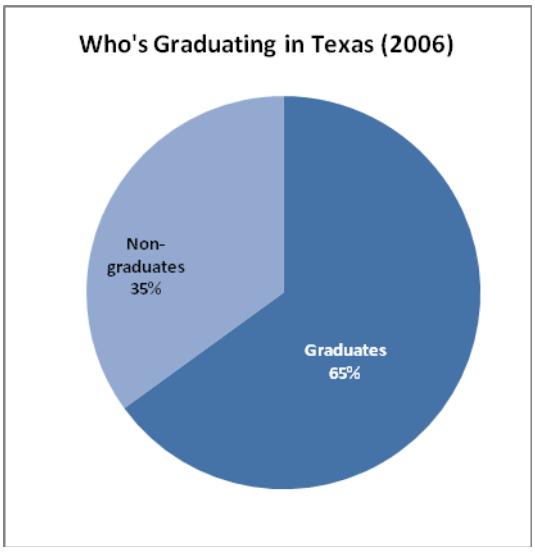
We have defined Driver 3 (Enrollment Pipeline) as the factors that identify and define the needs of the client, HCC students, specifically Graduation Rates and Industry Demands. These factors impact the development of future HCC facilities and significantly impact the make-up and needs of future student populations. Graduation rates and specific educational needs of incoming students are balanced with the employment needs of the Houston area industries and the skill sets they require when seeking new employees. Competition is also considered as HCC must compete with nine local community colleges to attract students.

1.3.1 Graduation Rates

The following statistics on high school graduation and college attendance come from Early College High School Initiative – started in 2002.

- Young people from the middle-class and wealthy families are almost five times more likely to earn a two- or four-year college degree than those from low-income families.
- For every 100 low-income students who start high school, only 65 will get a high school diploma and only 45 will enroll in college. Only 11 will complete a postsecondary degree. *(*Source: JFF analysis of data from the National Educational Longitudinal Study for students from the lowest-income SES quintile. The period of time measured includes outcomes from students' entry as ninth graders in 1988 to the year 2000.)
- Nearly half of US African-American students and 40% of Latino students attend high schools in which graduation from high school is not the norm. In the nation's 900 to 1,000 urban "dropout factories," completing high school is a 50:50 proposition at best. (*Source: Robert Balfanz and Nettie Legters. 2004. Locating the Dropout Crisis—Which High Schools Produce the Nation's Dropouts? Where Are They Located? Who Attends Them? Baltimore: Johns Hopkins University.)*[1]

Roughly 65% Texas students are graduating from high school according to Editorial Projects in Education and Research Center. The charts below demonstrate this statistic along with graduation rates for all seven of the Independent School Districts within the HCC service area. These differences in graduation rates show differences in the educational needs of students in these areas. Areas with higher numbers of students not graduating from high school will need more remedial courses and GED certification programs. Alternative graduation programs should also be emphasized. Students in these areas may also be geared towards early high school graduation programs.



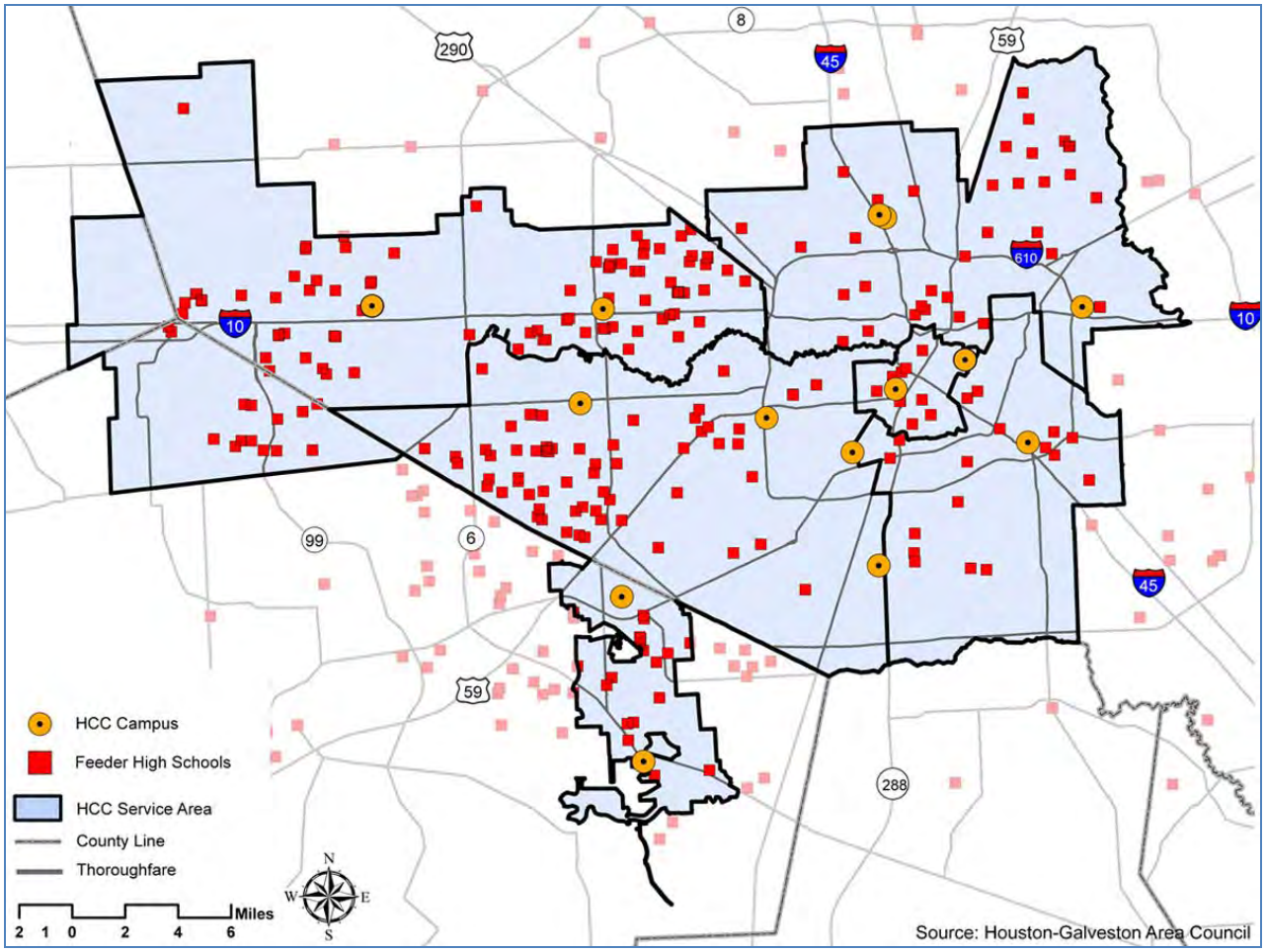
GRADUATION RATES (2006)			
ISD	ISD AVG	STATE AVG	NATIONAL AVG
Houston	42.8%	65%	68.6%
Stafford	64.1%		
Fort Bend	78.6%		
Katy	87.6%		
Spring Branch	62.3%		
Alief	44.6%		
North Forest	40.9%		

[1] http://www.earlycolleges.org/overview.html

Chart 3, Table 16: Graduation Rates - Sources: ISD information comes from each ISD noted. State Average comes from the Alliance for Excellent Education. National Average comes from the National Center for Higher Education Management Systems.

Graduation rates are seen as a fundamental indicator of school success. Almost 90% of the fastest-growing and highest-paying jobs require some postsecondary education. Having a high school diploma and the skills to succeed in college and the workplace are essential. Low-performing schools that fall within the HCC service area should be noted as students from these schools may be excellent candidates for HCC workforce development outreach and early high school graduation programs.

Identifying the ISDs with lower graduation rates and having future campus locations around those school districts with the offering of relevant coursework that supports high school education will play a key role in long-term success of HCC system by strengthening the enrollment pipeline.



Map 9: Location of High Schools that feed HCC enrollment

The map above outlines the local high schools that are feeder schools into the HCC system from the ISDs referenced. Additional ISDs outside the immediate HCC service area may also be viable feeder schools.

Early College High School Programs

A study conducted by John Hopkins University and the Associated Press named 42 high schools in the Houston area that have an attrition rate of 40% or higher. Amongst these 42 schools, 26 were located in the HCC service area. In such cases, HCC's involvement in the early college high school program can make a difference in state high school attrition rates by encouraging students to stay in school and providing them with viable education options. The table below outlines specific schools within the HCC service area that are feeding the current Dual Credit Program.

FEEDER SCHOOLS FOR HCC'S DUAL CREDIT PROGRAM	
Central College	HISD high schools – HSPVA, Jones, Lamar, Madison, Sterling, Worthing, and Yates

Table 17: Feeder Schools for Central College's Dual Credit Program

The early college high school program provides students the opportunity to receive a high school diploma and an associate's degree or up to two years of credit toward a bachelor's degree in the span of five years. Students take a mixture of high school and college classes in order to obtain their high school diploma and associate's degree. Each early college high school is a public school and is open to any resident in the school district. HCC operates six early high school programs throughout the Houston area. Early college high school classes also allow students to transfer credits to public universities in Texas and some private institutions. Available academic courses include English, History, Government, Biology and Economics.

Schools are designed so that low-income, first-generation college students, students learning English, minority students, and other under-represented students can benefit from programs where they can earn high school diplomas and associate degrees.

Early college high school classes are already being offered at several HCC campuses. For example, Spring Branch ISD students can attend classes at the HCC Spring Branch campus or at their high school.

1.3.2 Competition

HCC is not the only community college in the area that is looking at graduation rates, the need for GED classes and teaming with local ISDs to strengthen their enrollment pipeline with early college high school programs. The table below identifies some of these local colleges with basic comparisons on enrollment, tuition and student success as measured by the volume of degrees and certificates awarded in 2008-2009.

LOCAL COMMUNITY COLLEGE OFFERING ACADEMIC AND TECHNICAL CERTIFICATES AND DEGREES			
Community College	**2009 Fall Enrollment**	**Tuition, Books and Fees**	**Degrees and Certificates awarded 2008-2009**
Alvin Community College	5,189	$9,337	939
Blinn College	16,855	$12,521	1,253
Brazosport College	3,866	$11,300	208
College of the Mainland	3,916	$10,136	484
Galveston College	2,167	$11,794	373
Houston Community College	42,104	$11,522	3,577
Lee College	6,542	$15,570	1,420
Lone Star College System	55,491	$11,942	3,530
San Jacinto College District	30,449	$14,099	4,254
Wharton County Junior College	6,622	$12,015	675

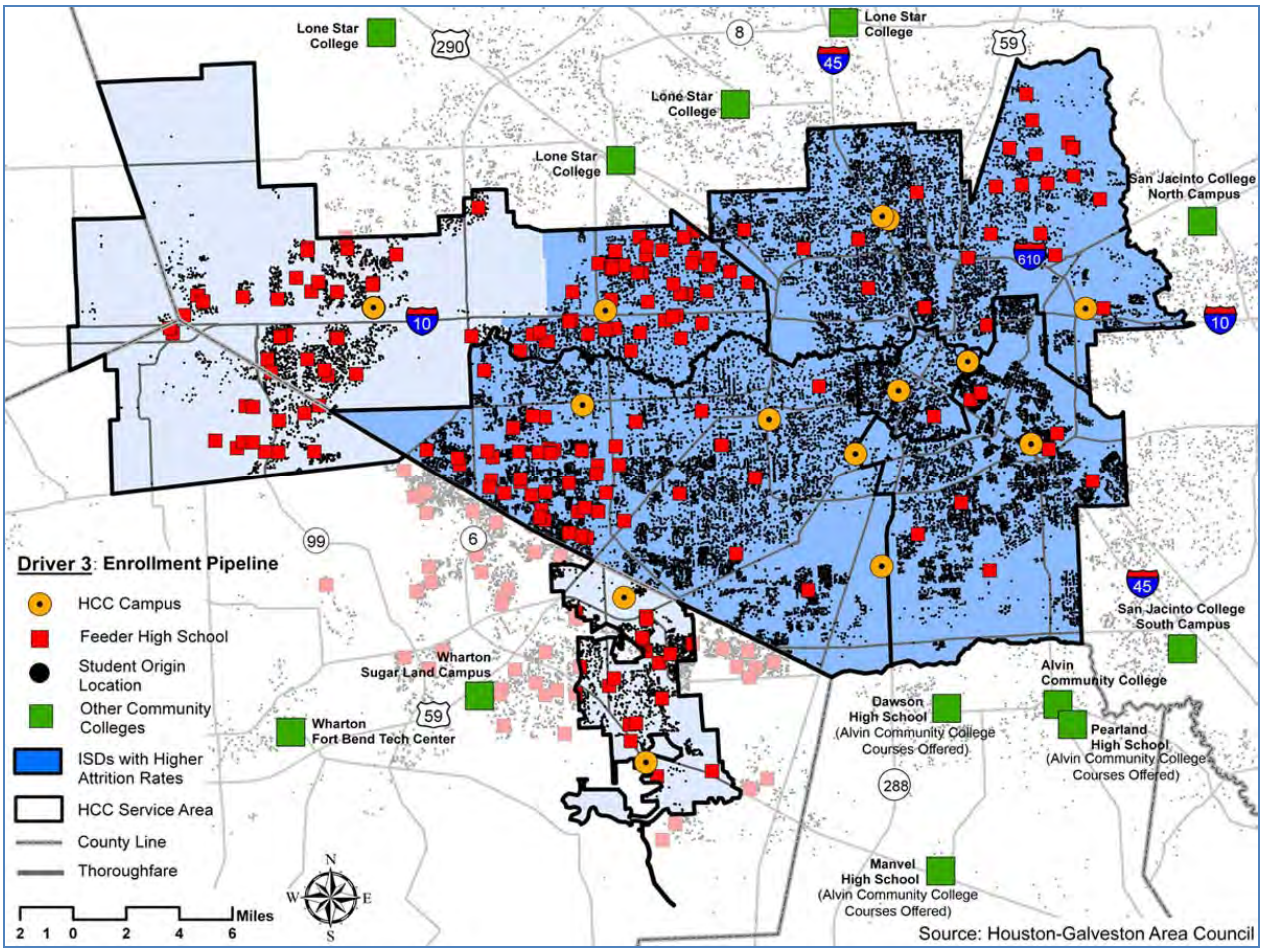
Table 18: College for all Texans, National Center for Education Statistics, Texas Association of Community Colleges

The individual colleges' programming will no doubt impact the students' selection of college. This topic will be addressed in the strategic plan. The prevue of the FMP is to factor in the impact of the location of the facilities themselves and what role that may play in attracting student enrollment. In addition to questions of programming, there is also the issue of benchmarking. An additional benchmarking study is recommended to identify colleges that are leading the nation in enrollment, engaging top level educators, attracting investment and promoting student success. These are the institutions of higher education that are also leaders in developing distance education programs and developing a network of well maintained campuses – in short they provide their students with accessibility options.

In Driver 2, Accessibility, we have already determined that for many students the cost of commuting is an important factor in deciding whether or not to attend higher education classes. With increased travel times expected, accessibility issues will be an even greater concern as traffic changes occur. Students will increasingly need to access classes near where they work and live especially during peak commute hours.

The dot density map on the following page shows the outline of the HCC service area along with current campus locations, that of the local competition and the concentration of HCC students represented by their home address. This map highlights the proximity of students to the HCC campuses and the number of students that come from outside the HCC service area. Approximately 80% of HCC's student population lives in-district while 20% of students live outside the HCC service area. It is important to note, there are additional locations for the local community colleges which fall outside of the map boundaries and these colleges are continuously seeking ways to grow – just like HCC. It is also interesting to note that many of

the competitor locations are in high growth areas like Tomball, Sugar Land, and Pearland. Several locations are also in the



Map 10: Competition Locations

1.3.3 Industry Demands

The need and direction of local workforce development will have a significant effect on Houston Community College as the skill set of the existing labor pool must change to accommodate demand. The City of Houston compiles jobs data using US Census Bureau statistics (from the 2000 US Census and the 2009 forecast) to compile local industry statistics. These statistics are broken down in the chart below to show the Top Industries for each of the HCC campus areas. Major trends include an increase in jobs for the health care industry and construction (which has recently fallen off due to economic conditions) , both of which saw significant increases in jobs in every HCC service area from 2000 to 2009. Industry losses were seen in Manufacturing, Wholesale Trade, Information, and Utilities in every HCC District.

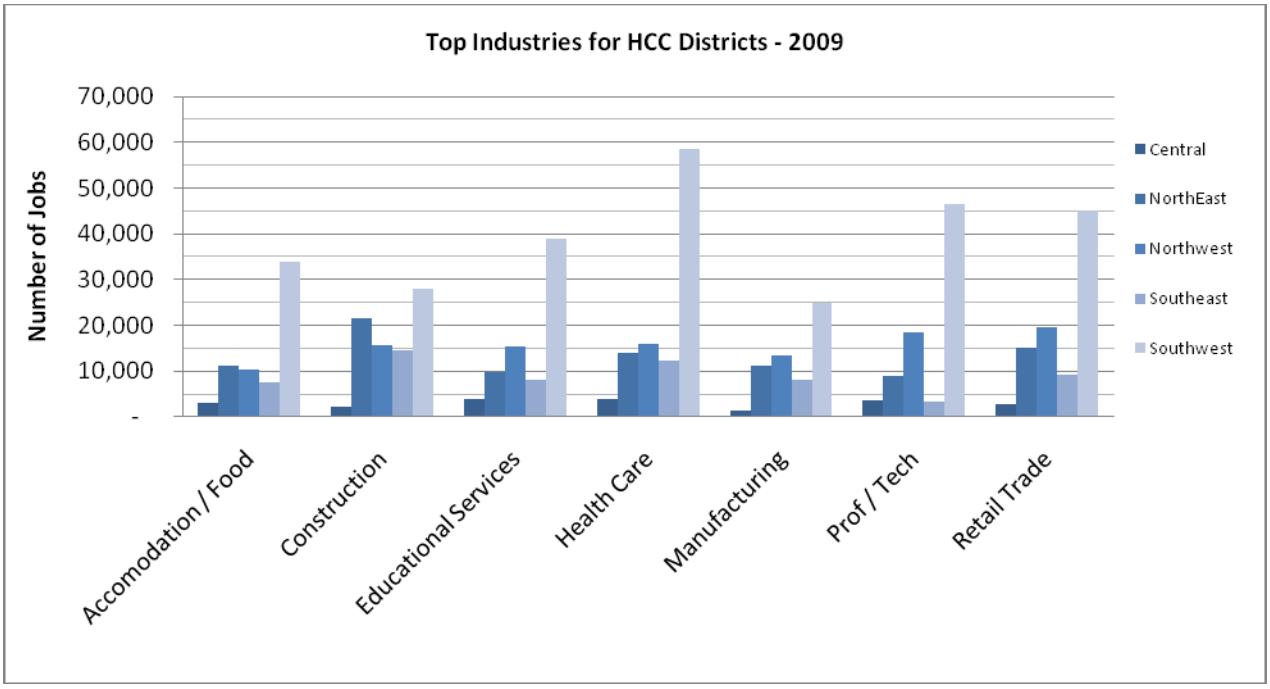


Chart 4: Top Industries for HCC Districts

Community College class offerings must change to accommodate the demands of the existing labor pool in order to fully address the shifting skill sets required in the local labor force. It is important to track the growth of specific industries in the Houston region and their attendant labor needs. Collecting current data and leveraging industry partnerships will be important for input and can help forecast future workforce needs.

Community colleges generate $276 million per year in intangible benefits associated with increased rates of higher education, including improved health, reduced unemployment, crime, and welfare spending. (HCC Foundation)[2] Career technical programs are "essential to the state's effort to reduce dropout rates and to meet employer demand for current and future jobs, many of which do not require a bachelor's degree."[3] For a strong and productive workforce, strong educational skills will be imperative. Texas must focus on efforts to improve graduation rates and to provide workforce specific training to its population.[4]

Despite a nation-wide economic downturn, Texas' economy has remained relatively strong and business leaders continue to see Texas as being a strong location for business development. CEOs have ranked

[2] http://www.hccsfoundation.org/Page.aspx?pid=261
[3] Advancing Texas, Strategic Plan for the Texas Workforce System, [FY 2010-FY2015], Texas Workforce Investment Council, Austin, Texas, 2009
[4] Texas Workforce Investment Council, *Texas Index* 2007.

Texas as the top state for job growth for the fourth year in a row.[5] Last year, Houston ranked in the top five for Best Cities for Jobs ranking conducted by Forbes magazine.[6] Understanding the local job market, following industry demands and offering relevant courses at future locations will help drive enrollment.

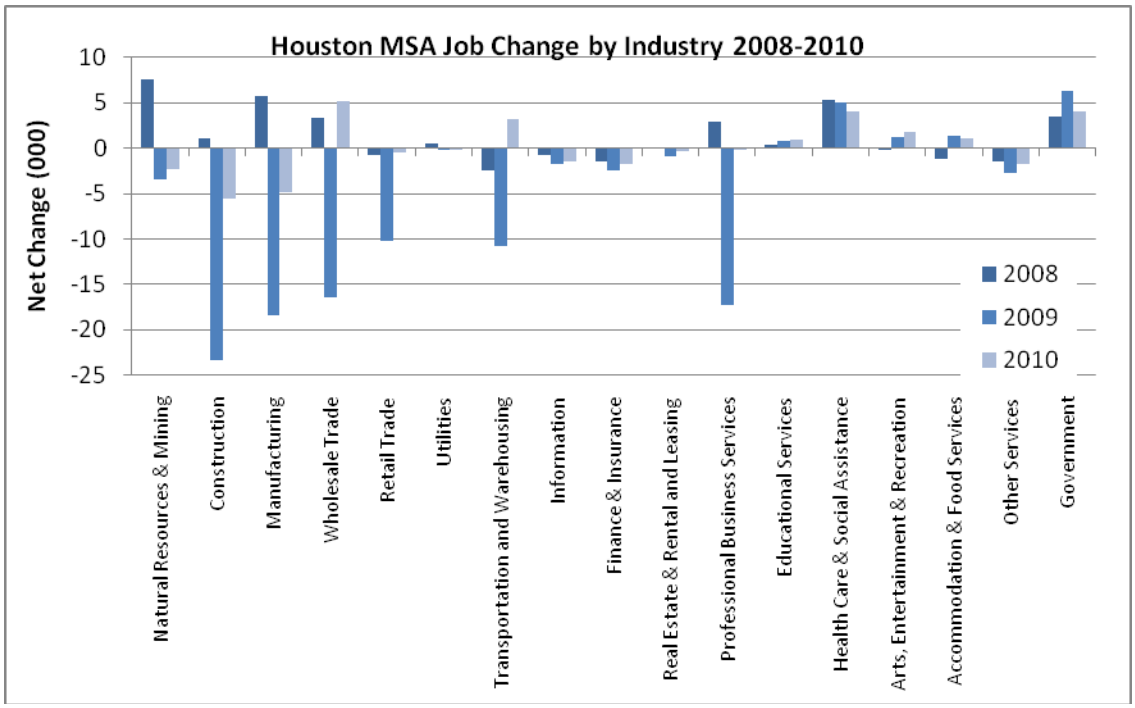


Chart 5: Houston MSA Job Change by Industry 2008-2010 – Greater Houston Partnership (GHP)

The chart above shows the most recent change in employment statistics while the chart below offers a forecast of employment through 2016. Tracking the current and future industry demands will help to: Identify partnership opportunities, required programming and assist in facility planning.

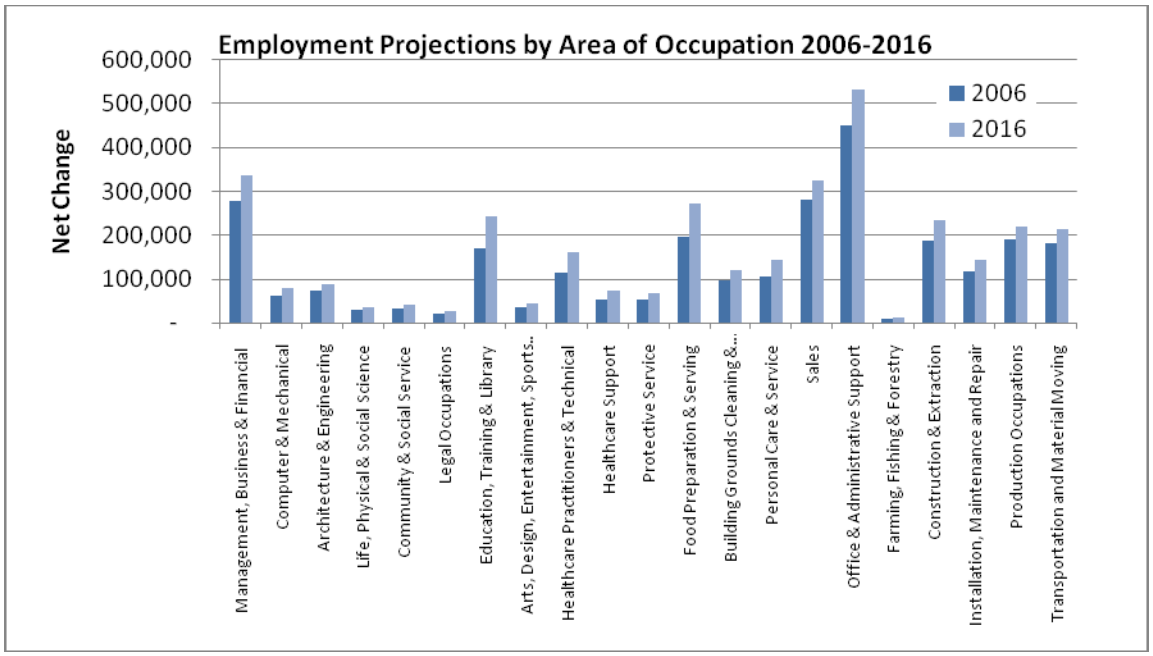
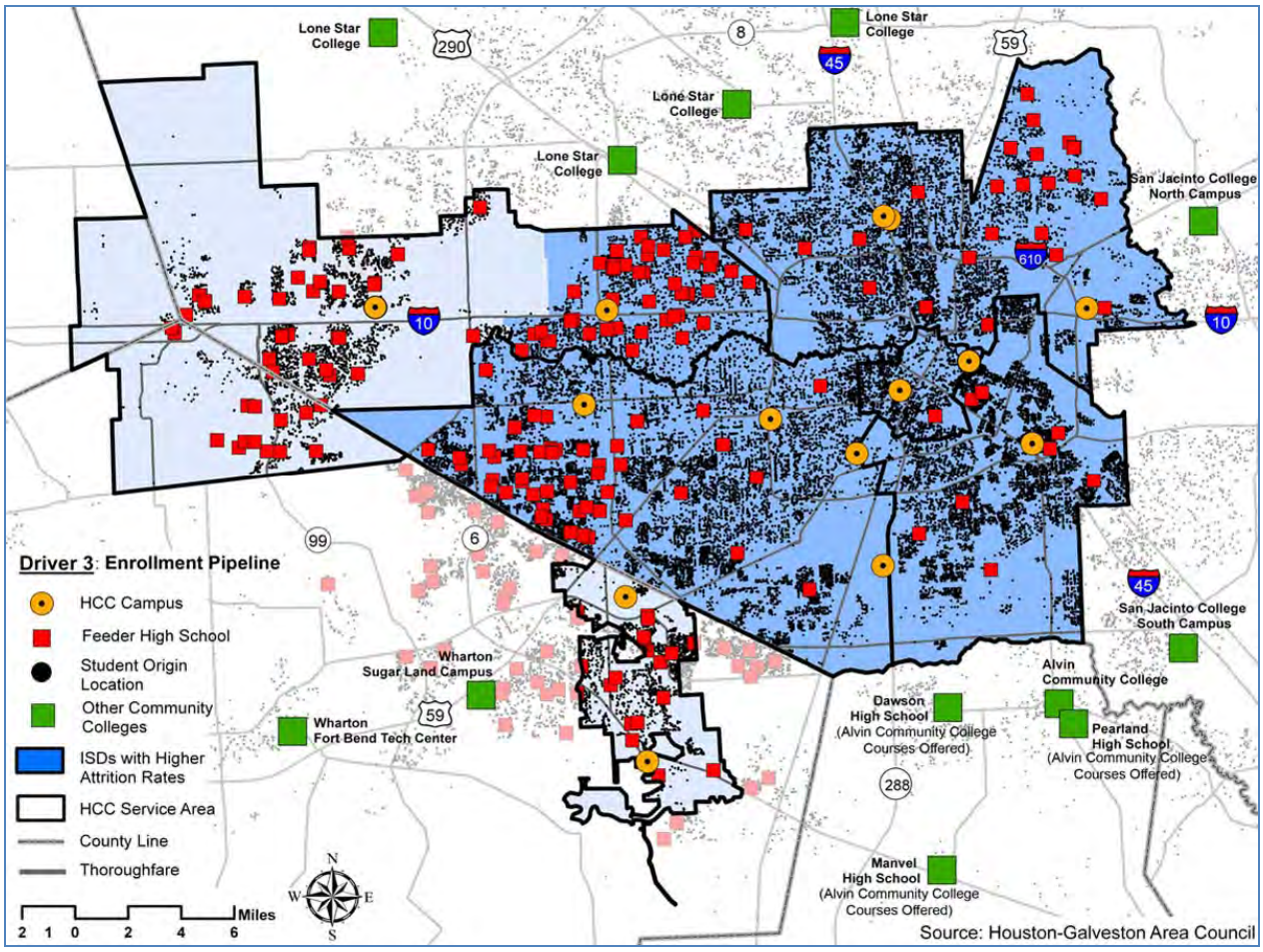


Chart 6: Employment Projections by Area of Occupation 2006-2016 - GHP

[5] Chief Executive Magazine, January/February 2009.
[6] Forbes.com, April 14, 2009.

1.3.4 Summary of Enrollment Pipeline – Driver 3

HCC has been successful in creating a pipeline from area high schools and has been innovative in creating student retention programs to ensure student success rates. The map below outlines the local high schools that are feeder schools into the HCC system from the ISDs referenced. Additional ISDs outside the immediate HCC service area may also be viable feeder schools.



Map 11: Summary of Driver 3 impact on future HCC site selection

1.4 Summary of Drivers

The location of future facilities is critical to the successful delivery of HCC services. The FMP plays an integral role in the overall planning process by providing a guideline for how to evaluate and best identify prime facilities locations. The map below is a compilation of highest growth areas for each of the three main drivers identified in this study and outlined in the figure at right.

Locating facilities in areas with the highest growth increases the potential utilization of the facility which also implies increased enrollment. As the map below highlights, growth in the greater Houston area through 2035 will be significant and provides HCC with many choices for expansion. Supplemental studies will help to determine facility composition and timing of construction. This information will feed the bond package preparation process and provide useful support to the final development of VISION 2035.

The map was compiled by developing a cumulative index of all three driver summary maps. Because expansion of current facilities will be largely determined by future studies already outlined in this report, a 2-mile buffer was added around each existing facility.

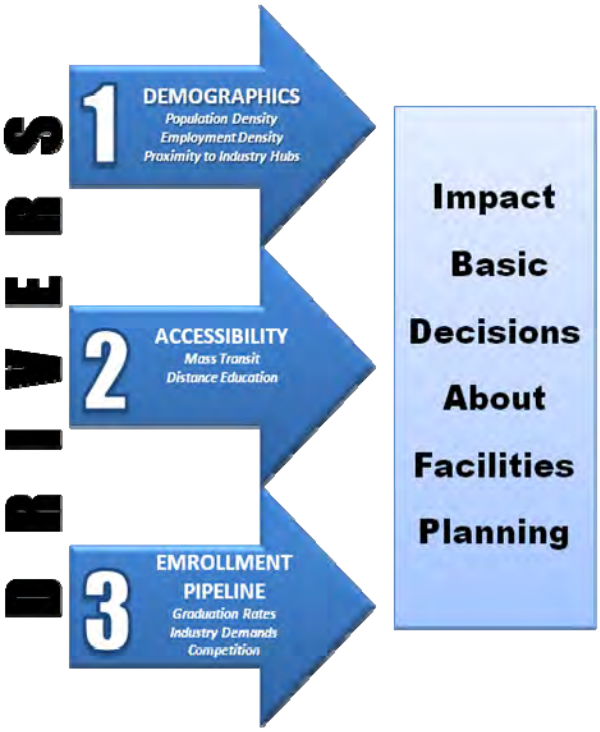
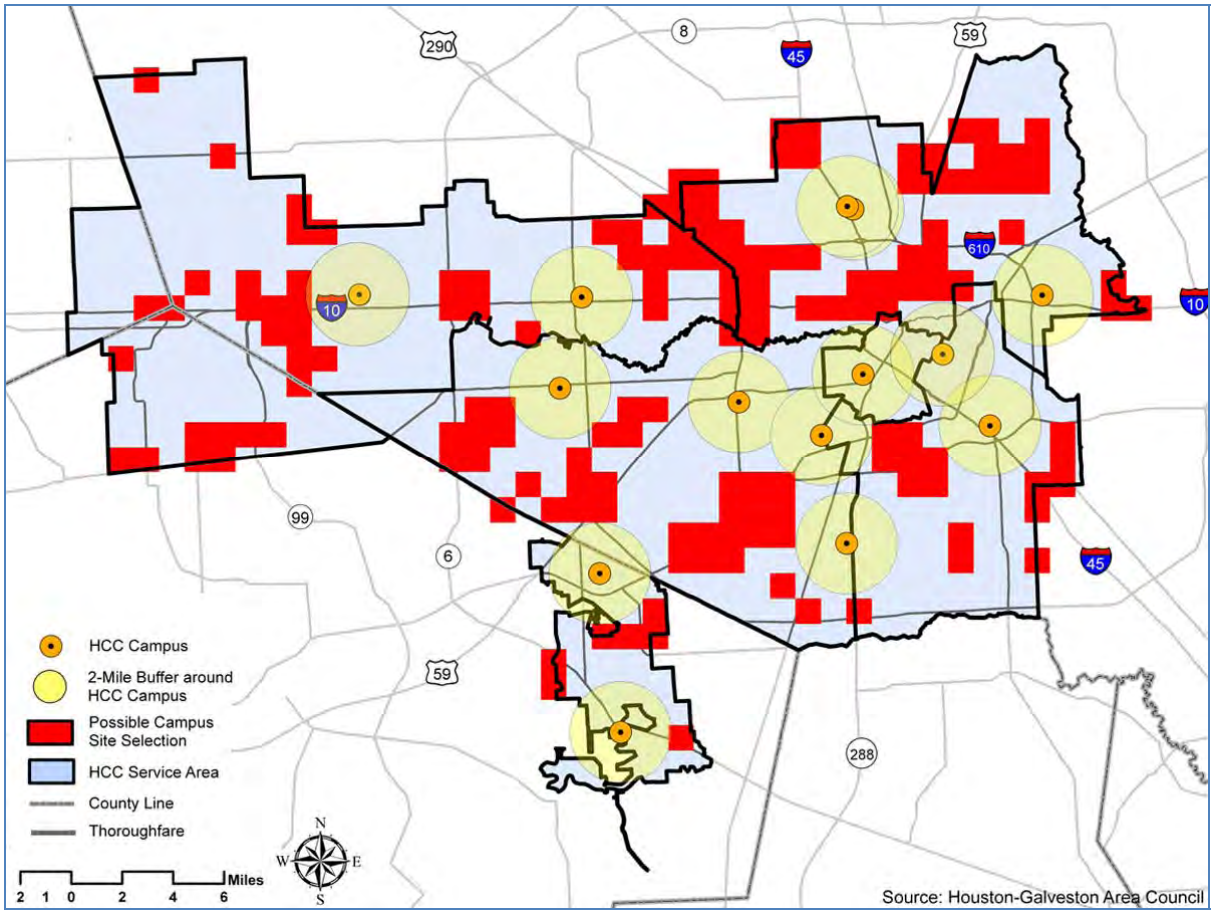


Figure ?: Facility Location Drivers



Map 12: Summary of all three Drivers impact on future Central College site selection

The resulting composite map identifies the following areas that, under the given criteria, suggest the optimum growth potential for future HCC locations:

- **Central College** - Two existing campuses eliminate the need for an additional campus, the focus will be on expansion. Significant population and employment growth from 2010-2035, transit accessible and enrollment pipeline. Very suitable location for all drivers.

HCC FACILILITIES MASTER PLAN

NORTHEAST COLLEGE

INDIVIDUAL SUMMARY BY DEMOGRAPHICS

DRAFT COPY

1 DRIVERS

For HCC to effectively expand to meet future demand, it must develop an understanding of the changing landscape in which it finds itself. The location of future facilities is critical to the successful delivery of services to the community. The FMP, used in combination with HCC's strategic plan, which will be published later in the year, plays an integral part in the overall planning process by providing a guideline for how to evaluate and best identify prime facilities locations.

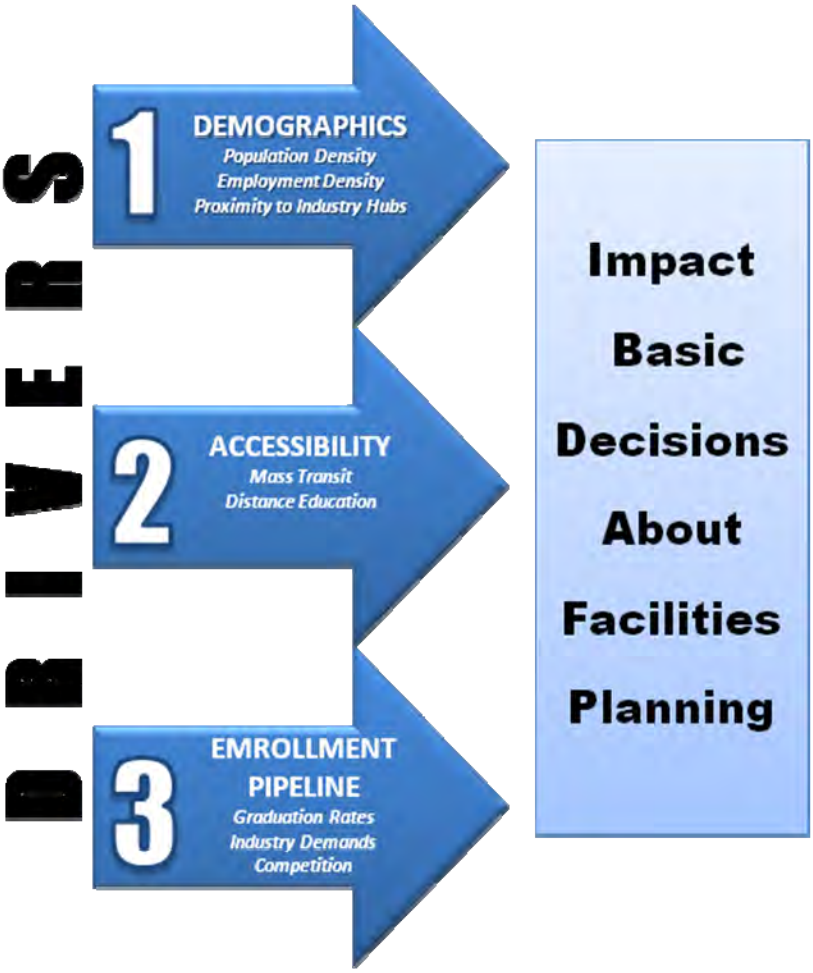


Figure 8: Facility Location Drivers

When researching factors that influence facility development at HCC, many factors emerged including:

- Population
- Economy
- Transportation Access
- Economic Growth
- Facilitate Organic Growth
- Community Redevelopment
- Feeder Patterns
- Funding
- Strategic Planning
- Programming
- Educational Delivery System
- Enrollment
- Return on Investment
- Proximity to Other HCC Campuses
- Take what you can get
- Budget
- Competition
- Benchmarking

Ideally, the research behind the need for a new facility would include all of these factors along with consideration of the needs of the entire system to prioritize locations. To narrow the scope of the discussion, those elements that have the most significant impact on facility development have been short listed into the chart to the left.

By examining and truly understanding changes in the three short listed drivers**,** HCC will be able to carefully plan and maintain the managed growth of the College. Once identified, these drivers were then reviewed for accuracy by planning and development professionals at the City of Houston and the Houston-Galveston Area Council, as well as, noted researchers in the areas of population and urban growth. These drivers are represented by tangible data that is collected periodically by reliable sources and will be periodically updated and available for reanalysis and incorporation into the model.

Using this report, decision makers can assess the best location for future facilities in keeping with the College's goals and VISION. The FMP is one tool in the overall planning strategy and must be considered in connection with HCC's overall VISION, strategic, academic, and financial plans. Where facilities are located, their composition, and how they function must reflect the goals of the institution and further those objectives.

1.1 Demographic

Demographics in the HCC service area and changes to the service population will drive questions of facility location and type. Associated with demographics are the issues of programming (which is covered in the strategic plan), current utilization and capacity (studies are recommended in both areas). Students frequently attend a specific campus based on proximity to their homes or workplace. Therefore, the two greatest factors that make up questions of demography, as they relate to the future needs of HCC, will be residential density and employment density - determined by how many people are living or working in an area.

1.1.1 Population Density

The key to understanding the demographic outcomes for the region are most important in terms of population densities. Concentrations measure the number of people in a defined area. While forecasts predict increases in populations across the board, it is where this increase is sharpest that is most important because it will have the greatest impact on facilities planning.

The Brookings Institute has labeled Houston as one of the "Next Frontiers" based on its high growth, high diversity and high education compared to the 100 largest metro areas in the US – according to the Brookings Metropolitan Policy Program. The HCC service area contains almost all of Harris County and parts of Fort Bend and Waller Counties. The service area is home to over 2 million residents. In context with the HCC service area, the population density in the year 2010 shows the highest rate of density:

- inside the 610 loop,
- southwest part of Houston inside Beltway 8 between I-10 and US-90A,
- satellite cities such as Missouri City, Sugar Land, Katy and
- around I-45 corridor between Beltway 8 and 610 area.

The tables below breakdown the 2009 population by gender for HCC and of the Northeast College.

POPULATION INFORMATION, 2009 EST.	
Total Population	2,140,484
Adult Population	1,566,791
Male	50.3%
Female	49.7%

Table 11: Houston Area Population Information – H-GAC 2035 Regional Forecast

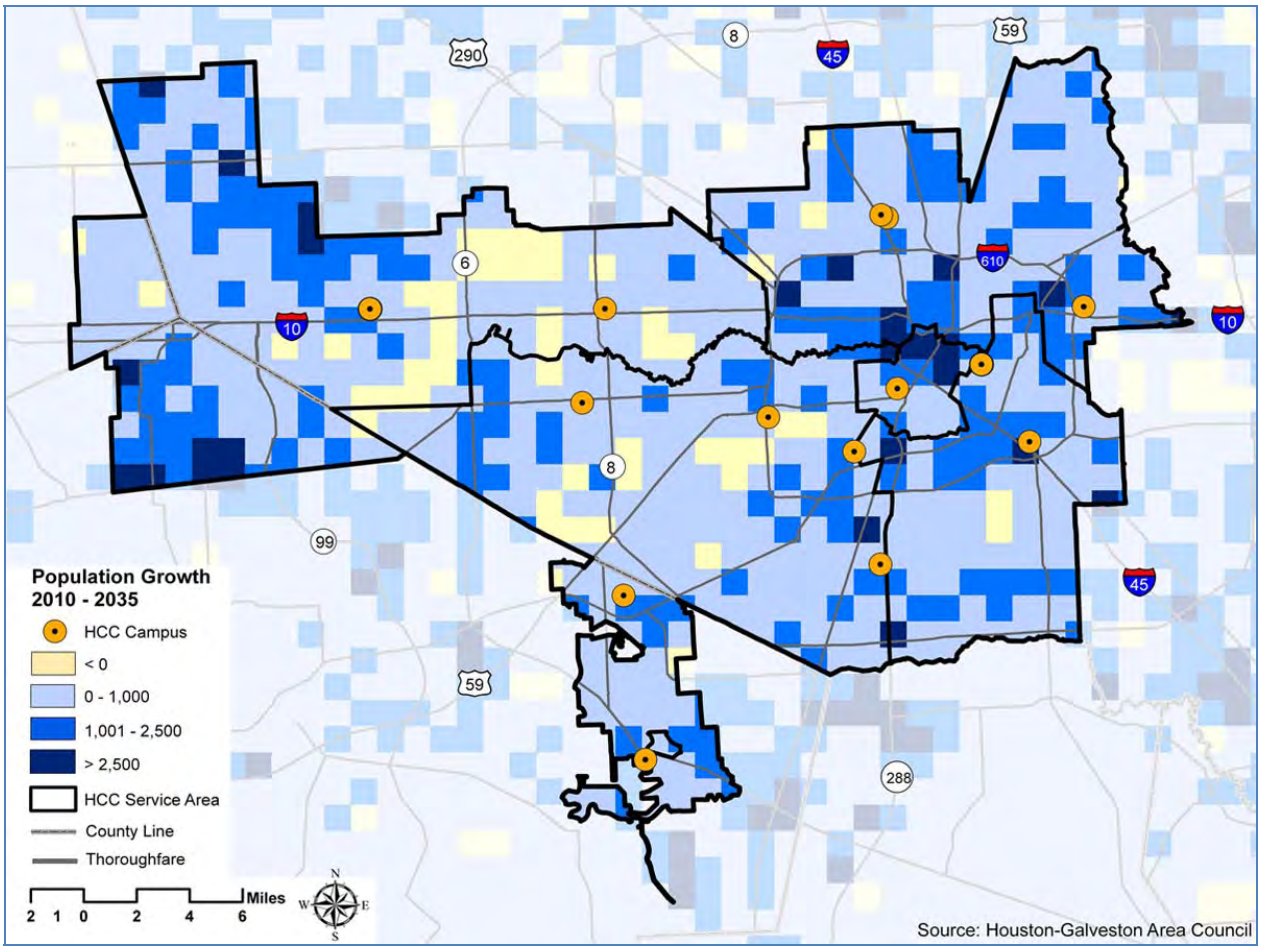
POPULATION IN HCC COLLEGES			
HCC College	**Current Enrollment**	**2010**	**2035**
Northeast	43,738	459,066	563,370

Table 12: HCC Northeast College Enrollment – H-GAC 2035 Regional

Population Growth (change) between the years 2010 – 2035:

Simply looking at the population density will not help us understand the areas experiencing the largest growth. We have to understand the growth pattern and identify areas that will undergo change. In the map below, the dark blue areas highlight the highest population growth between 2010 and 2035.

- In the East between I-10 and US-59 (cities including Baytown, Cloverleaf, Channelview, Barrett, Crosby and Atascocita) will experience high population growth.



Map 2: Population Growth between years 2010 – 2035 (Data source: H-GAC)

Placement close to population growth centers creates an opportunity to capture:

- Students requiring GEDs
- Early College High School students
- The unemployed seeking training/retraining
- Students that may require public transport to access education

1.1.2 Employment Density

Houston and its surrounding ETJ are home to more than 1.7 million jobs. Houston's employment growth has exceeded the national employment growth for several years. By 2035, employment will see a 40% increase to 613,000 jobs and the ETJ will see an increase of 160,000 jobs or a projected 50% increase. The following charts show job growth expectations for the HCC Service Area.

HOUSTON AREA EMPLOYMENT 2007 AND 2035		
	2007	**2035**
City	1,531,000	2,115,000
ETJ	160,000	320,000

Table 13: Employment Growth – H-GAC, 2035 Regional Growth Forecast

JOBS BY HCC COLLEGES: 2010 AND 2035		
HCC COLLEGES	**2010**	**2035**
Northeast	252,000	405,000

Table 14: Job Growth in Northeast College - H-GAC

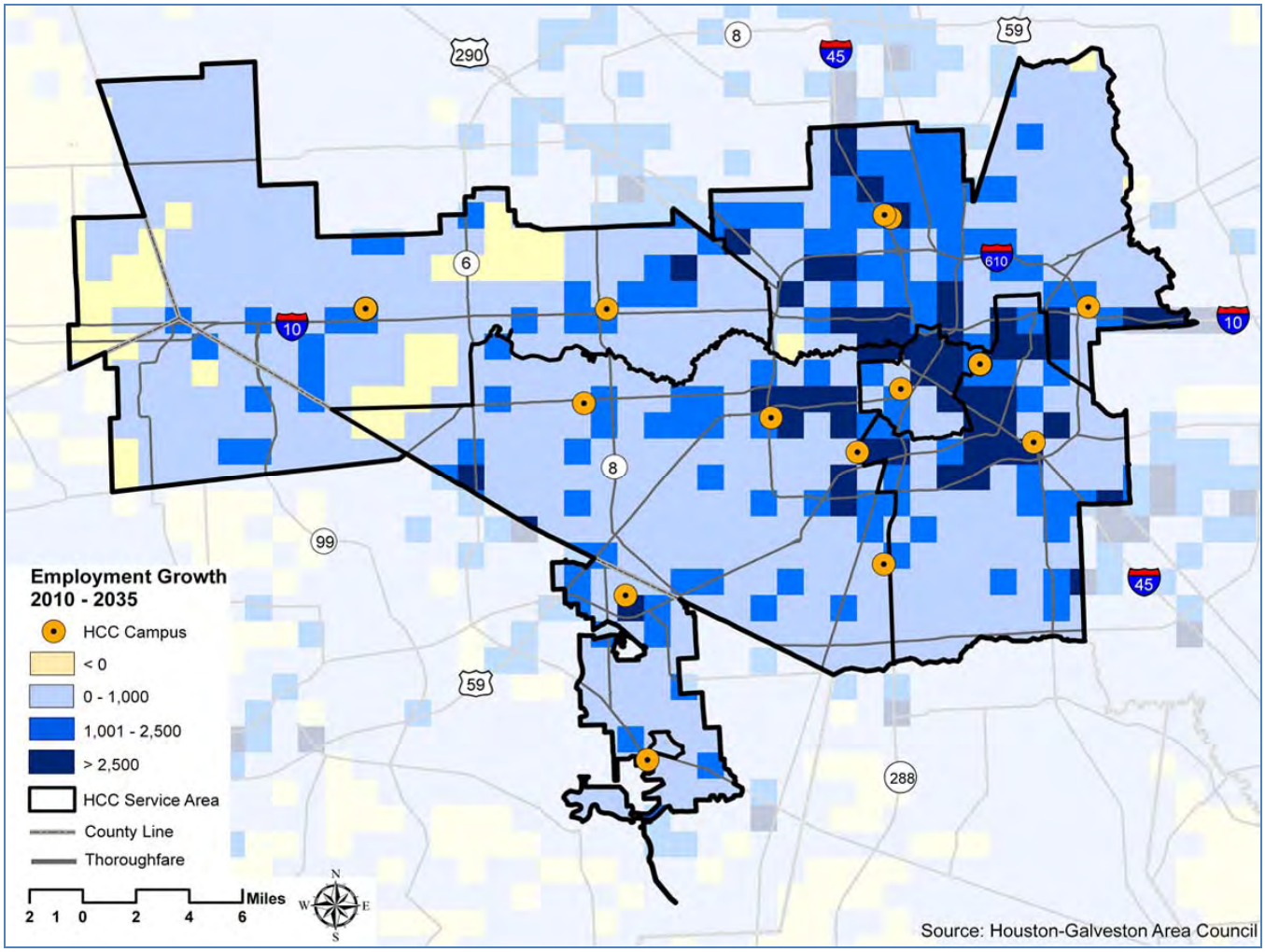
Employment density in the year 2010 shows high employment concentration along the Northwest Freeway. By 2035, the growth is even more significant around the I-45 corridor north of downtown towards IAH. Outside of HCC service areas, the strongest growth is forecasted along the I-10 East corridor connecting Jacinto City and Channelview, SH225 connecting to the Port through City of Pasadena, south of University of Houston and Hobby Airport vicinity and League City. I-45 North corridor connecting to IAH is also showing strong signs of employment growth which is concurrent with the population projection.

Because HCC students are more likely to attend school near where they work or live, it is important to note where the major employment centers of Houston are located. As traffic and travel times become increasingly important to Houston motorists this connection will only become more pronounced.

Employment Growth (change) between the years 2010 – 2035:

The map below outlines the areas experiencing the highest employment growth levels between 2010 and 2035.

- In the East part of the city around I-10 corridor (cities including Cloverleaf, Channelview, Barrett, Crosby and Atascocita) will experience high employment growth.



Map 3: Employment Growth between years 2010 – 2035 (Data source: H-GAC)

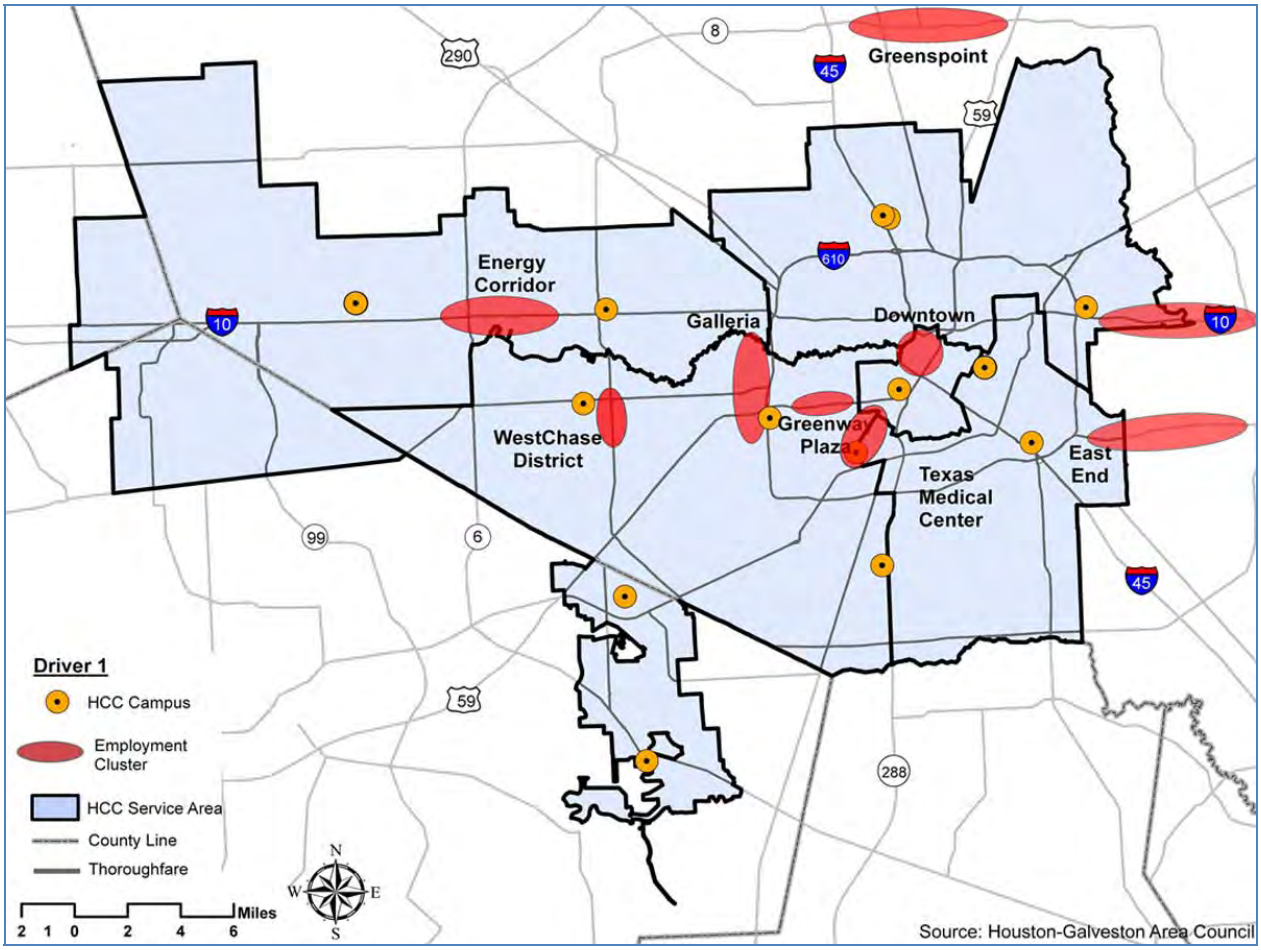
Placement close to employment growth centers creates an opportunity to capture:

- individuals seeking convenient training to upgrade their skill set,
- individuals seeking leisure learning opportunities,
- creates a useful venue for corporate retreats and
- provides partnership opportunities with industry leaders to service their training requirements.

1.1.3 Proximity to Industry Hubs

Houston is the center for many key industries including health care, aerospace, finance, petrochemical and oil refining. These industries are generally centralized in employment and industry clusters around the City and also serve as feeders for many potential students who are looking to advance their professional development through part-time enrollment and technical training courses. These employment clusters include Greenspoint and the large petro-chemical and refinery centers located

mainly on the east side of the City. As Houston continues to evolve, new hubs will develop and others will decline. Tracking these changes is important in charting the growth of HCC.



Map 4: Employment Clusters

Greenspoint

Located at the edge of metropolitan Houston, Greenspoint occupies 12 square miles and is an important employment center in Houston. It is home to operations for Express Jet, Noble Energy, Anadarko Petroleum, and ExxonMobil. Greenspoint is bordered by the Hardy Toll Road to the east, Airtex Boulevard to the north, Veteran's Memorial Drive to the west, and West Road to the south.

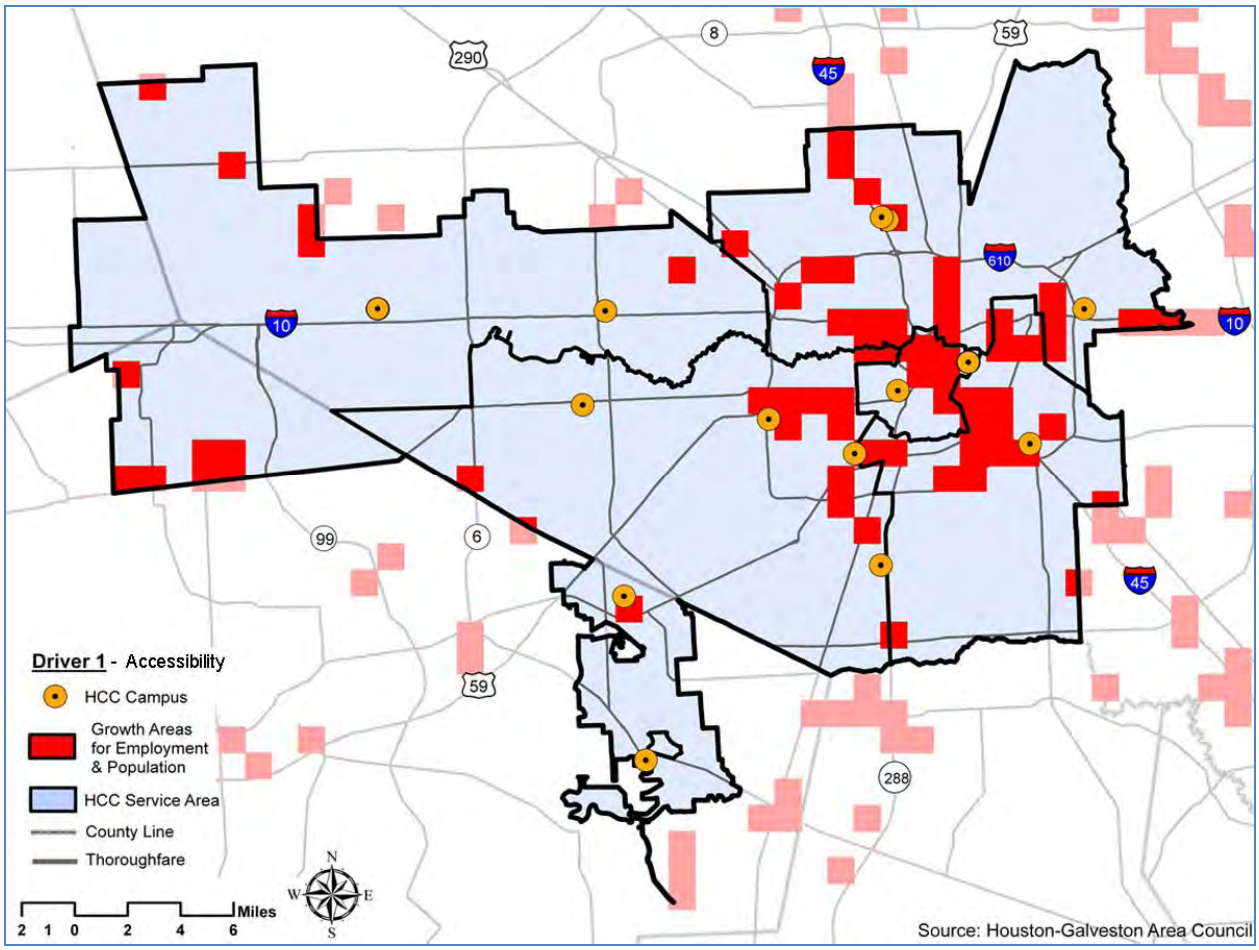
East End

The eastern side of Houston is home to a variety of heavy industrial, petrochemical, maritime, and manufacturing industries. It includes the Port of Houston, and Hobby Airport, as well as the businesses attendant upon them, such as shipping, transportation, logistics, warehousing, and source distribution. Anheuser-Busch, Maximus Coffee, Oak Farms Dairy, Farmer Brothers' Coffee, Vam Drilling and a single Valero refinery, account for over 2,600 direct jobs in the area.

1.1.4 Summary of Demographics – Driver 1

The two greatest factors related to demographics will be residential density and employment density - determined by how many people are living or working in an area. Students attend a specific campus largely based on proximity to their homes or workplace, thus making it important to track the changes in these demographics to uncover the most likely sources of future enrollment.

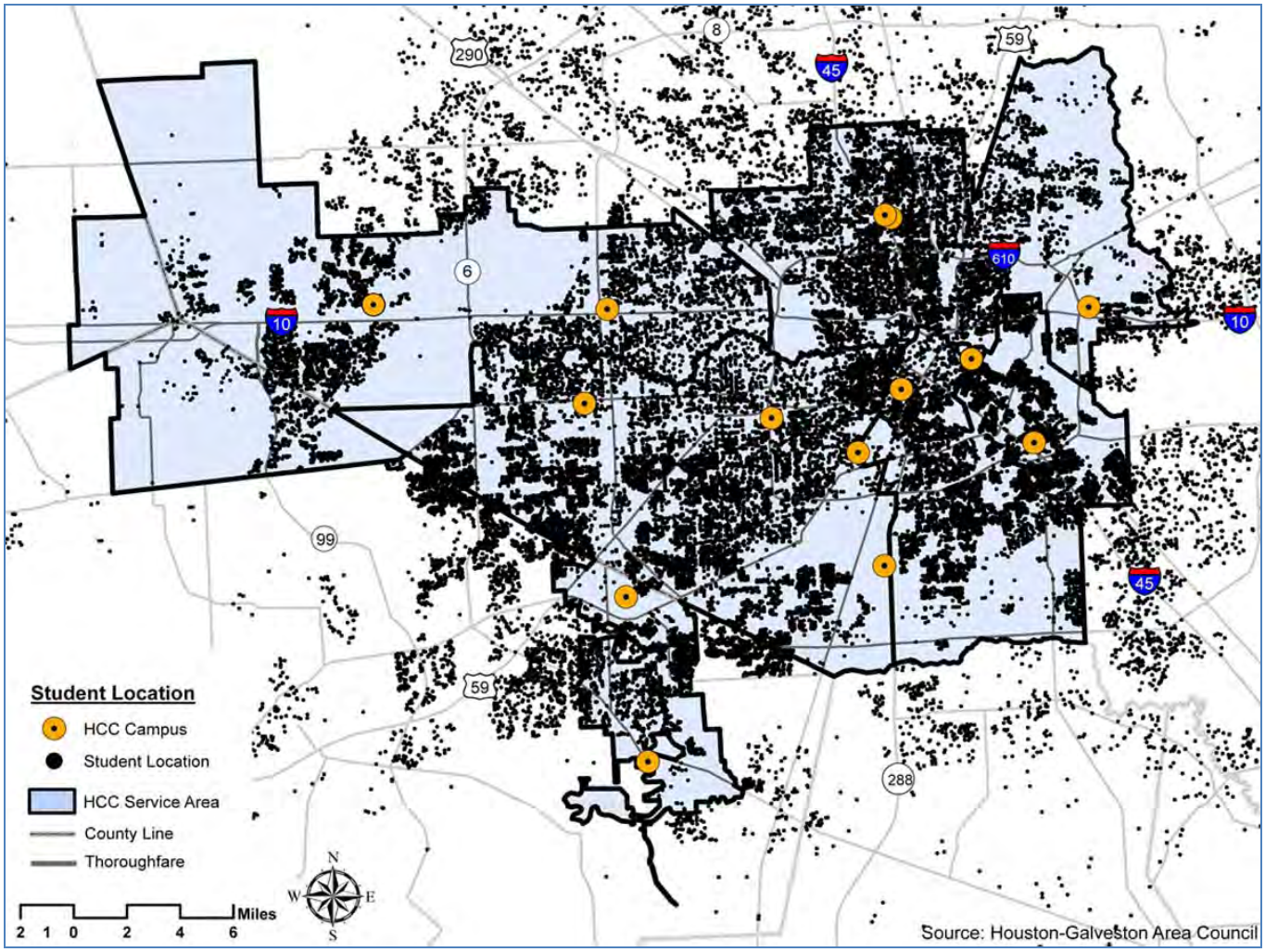
We have defined Driver 1 (Demographics) as combining the growth in population with employment density and refining them to the most significant areas of impact. It yields a concentrated view of critical growth areas. These areas are highlighted in the map below. These will be the focal points for HCC when considering placement of new facilities and possible expansion of existing facilities in order to leverage the projected growth.



Map 5: Summary of Driver 1 impact on future HCC site selection

1.2 Accessibility

We have defined Driver 2 (Accessibility) as a combination of transportation connectivity to future HCC campuses and trending growth in distance education as pertains to programming and campus planning. The dot density map below shows the outline of the HCC service area along with current campus locations and the concentration of HCC students represented by their home address. This map highlights the proximity of students to the HCC campuses and the number of students that come from outside the HCC service area. As the Houston area continues to expand, the commuter rail and light rail network is increased and HCC attracts more out of district students, it is vital to understand the role of transportation and the importance of providing students with necessary accessibility to transit hubs and employment centers.



Map 6: Student Location year 2009 - HCC

Approximately 80% of HCC's student population lives in-district. The dot density map above shows that many also live in close proximity to an HCC campus. However, 20% of students live outside the HCC service area which suggests that locating future campuses near transit, light rail and freeway corridors would provide more accessibility to the students to get connected with the HCC campuses and may result in increased enrollment.

Accessibility takes into account the ease with which people can take advantage of HCC services and the degree of convenience or difficulty students experience utilizing facilities. Reviewing accessibility is driven by an examination of area transportation infrastructure and the internal role of non-traditional and online course offerings. Generally speaking, the more choices students have for *how* to get to campus, the more positive an experience they will have.

1.2.1 Mass Transit

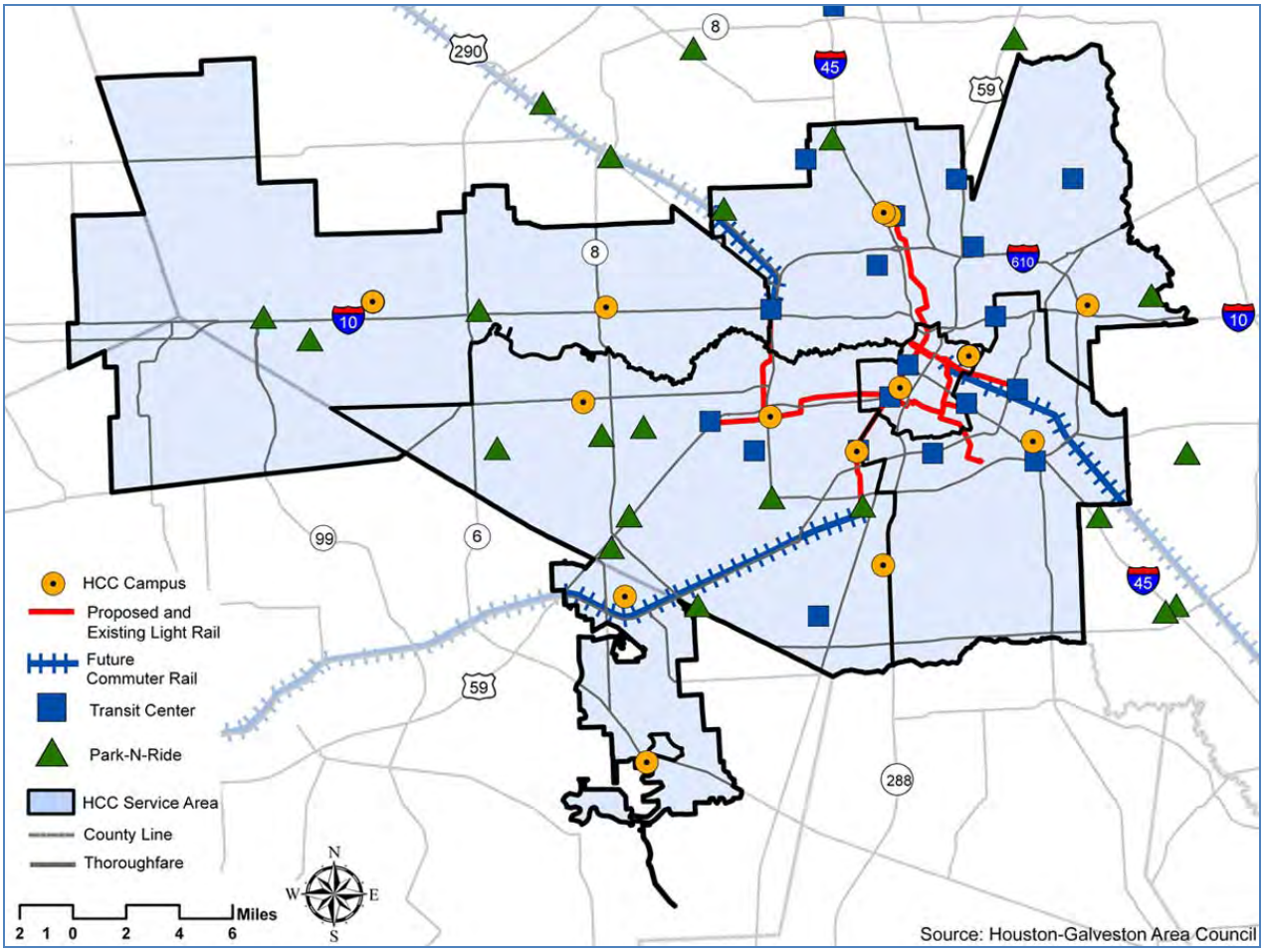
For many students the cost of commuting is an important factor in deciding on whether or not to attend higher education classes. The convenience of mass transit located near HCC facilities can increase access to higher education opportunities especially for economically disadvantaged students who may not have means for private transportation.

According to the H-GAC City Mobility Planning Travel Demand Model the number of work trips is expected to increase by 67% during the study period (through 2035) and travel time in the City and ETJ is expected to increase by two hours. Plans for the future transportation infrastructure expansion to address this projected growth include an additional 14% increase in overall street capacity over the next 25 years including 8,256 street lane miles or 13% in the City and 14,705 or 23% more street lane miles in the ETJ.

With increased travel times expected, accessibility issues will be an even greater concern as traffic changes occur. Students will increasingly need to access classes near where they work and live especially during peak commute hours. Many more students may choose to bypass traffic by utilizing mass transit options that can carry them from work or home to class in order to avoid transit delays.

Planned Transit Network Additions

In addition to the extensive METRO bus network across the greater Houston area, the freeway system and commuter rail and light rail are all critical for HCC students. The map below outlines the Houston transportation network with existing and planned transit facilities. The additional mass transit will provide greater mobility for all Houstonians and has the potential to increase enrollment.



Map 7: Light-Commuter Rail Corridors, Park-n-Ride, Transit Center Locations - H-GAC

Light Rail

The following lines are anticipated to be opened by 2012 as part of the METRO Solutions transit system expansion.

LINE NAME	DISTANCE	ROUTE
Red Line Extension	5.7 mi (9.2 km)	UH–Downtown Station to the Burnett Plaza and the Northline Transit Center

Table 15: Metropolitan Transit Authority of Harris County

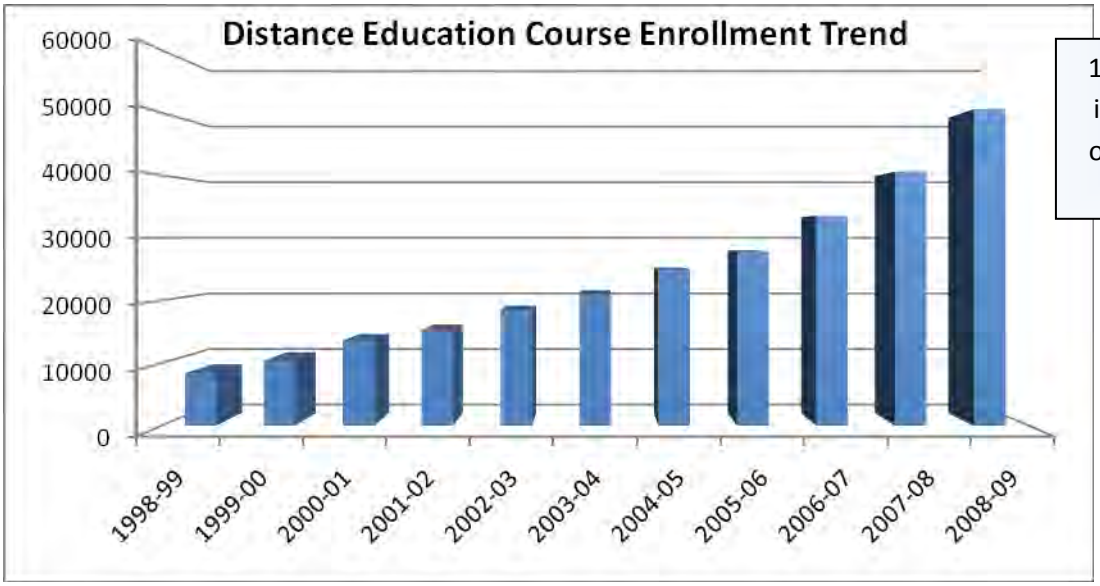
The current plans for proposed METRO light rail lines reveal the possibility of serious inter-connectivity between certain campuses. The Northline Academic Center campus will fall directly on the North Corridor route and will open up the possibility for students to access the campuses much more easily. It is conceivable that with the addition of the proposed rail lines students could enroll in greater variety of classes than would otherwise be possible.

The Eastside and Northeast Campuses will not be accessible by rail and are not expected to receive a high impact in student enrollment from the proposed rail lines.

1.2.2 Distance Education

As online learning becomes more available and more attractive to students, increased enrollment in online classes will have an impact on the need and design of future facilities. It is important to note that although much of online learning is done without the use of a traditional classroom environment, preliminary research shows that students will continue to desire face-to-face interaction with faculty and other students, they will also use testing facilities and visit the campuses for administrative services. Matching the ease with which students can access courses and services online and in the physical space will present a number of challenges and opportunities in terms of campus planning.

A recent survey published by the Instructional Technology Council in March of 2010 on Distance Education showed that from Fall 2007 to Fall 2008 (the most recent full year of available data) campuses reported a 22% increase for distance education enrollment while on-campus enrollment for the same year only reported a 2% increase nationally in enrollment. Another study conducted by the Sloan Foundation reported a 17% growth in distance learning enrollments while on-campus enrollment only increased by 1.5% (Allen & Seaman, January 2010). The Sloan Foundation study reports that over one-quarter of all higher education students are now taking at least one online course. There has been much speculation about when this growth will plateau, but it is expected to continue for the near future.



103% increase in enrollment over the last 5 years

Chart 2: HCCS Distance Education Records, 1998 to 2003, HCC OIR DataMart Files, Fall 2003 to Summer 2004; End of Term 2005 & 2009

HCC distance education trends follow this same national movement with increasing numbers of students enrolling in distance education courses. The undisputed growth in online learning will impact facility utilization therefore it is important to maintain accurate utilization records to determine the need for new facilities. In addition to determining need, the composition of facilities will also be impacted as online courses currently require some testing at on-site testing centers, students continue to seek administrative services on campus as well as gather for study groups or to socialize.

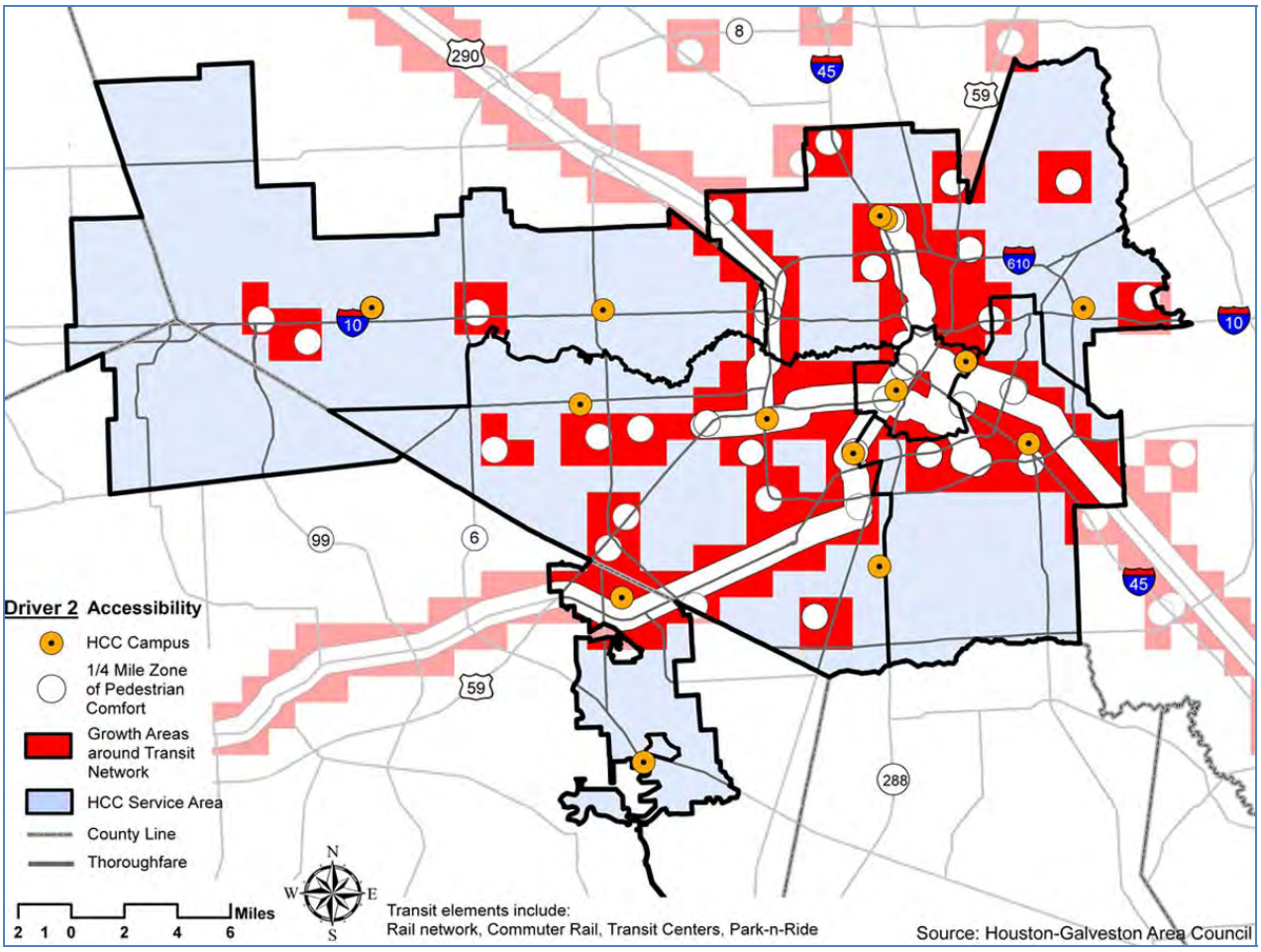
Recommended utilization and capacity studies will help to further define how existing space is being utilized and how to optimize it. By combining various statistics, these reports should help to forecast the need for new facilities as well as help to define their composition to best address the needs of the growing population of online students. The role of technology as it applies to adequately developing the facilities for this purpose should be a particular focus within the proposed studies.

1.2.3 Summary of Accessibility – Driver 2

Accessibility takes into account the ease with which people can take advantage of HCC services and the degree of convenience or difficulty students experience utilizing facilities. Accessibility to transit hubs and employment centers will become increasingly important as the Houston area continues to expand, the commuter rail and light rail networks are increased and HCC attracts more out-of-district students.

As online learning becomes more available and more attractive to students, increased enrollment in online classes will have an impact on the need and design of future facilities. On-line students will also need to travel to various campuses from time to time for testing, study groups, attend events or to address administrative issues therefore transportation and overall accessibility will impact them as well as the traditional students.

Accessibility is a significant factor in enrollment and must therefore be considered in facility location. The map below outlines the existing transportation network i.e. park-n-ride lots, transit centers and light rail and commuter rail networks that is being planned along with a quarter mile buffer around those transportation elements. The resulting red areas on the map are the recommended locations for new facilities to be considered. A quarter mile buffer is a standard urban planning measurement as research has proven that individuals are more likely to take transit if the destination is located within buffer zone as the distance is considered walkable.



Map 8: Summary of Driver 2 impact on future HCC site selection

1.3 Enrollment Pipeline

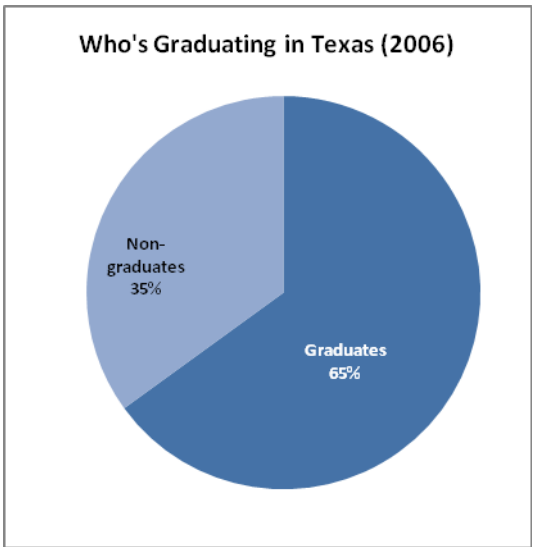
We have defined Driver 3 (Enrollment Pipeline) as the factors that identify and define the needs of the client, HCC students, specifically Graduation Rates and Industry Demands. These factors impact the development of future HCC facilities and significantly impact the make-up and needs of future student populations. Graduation rates and specific educational needs of incoming students are balanced with the employment needs of the Houston area industries and the skill sets they require when seeking new employees. Competition is also considered as HCC must compete with nine local community colleges to attract students.

1.3.1 Graduation Rates

The following statistics on high school graduation and college attendance come from Early College High School Initiative – started in 2002.

- Young people from the middle-class and wealthy families are almost five times more likely to earn a two- or four-year college degree than those from low-income families.
- For every 100 low-income students who start high school, only 65 will get a high school diploma and only 45 will enroll in college. Only 11 will complete a postsecondary degree. *(*Source: JFF analysis of data from the National Educational Longitudinal Study for students from the lowest-income SES quintile. The period of time measured includes outcomes from students' entry as ninth graders in 1988 to the year 2000.)
- Nearly half of US African-American students and 40% of Latino students attend high schools in which graduation from high school is not the norm. In the nation's 900 to 1,000 urban "dropout factories," completing high school is a 50:50 proposition at best. (*Source: Robert Balfanz and Nettie Legters. 2004. Locating the Dropout Crisis—Which High Schools Produce the Nation's Dropouts? Where Are They Located? Who Attends Them? Baltimore: Johns Hopkins University.)*[1]

Roughly 65% Texas students are graduating from high school according to Editorial Projects in Education and Research Center. The charts below demonstrate this statistic along with graduation rates for all seven of the Independent School Districts within the HCC service area. These differences in graduation rates show differences in the educational needs of students in these areas. Areas with higher numbers of students not graduating from high school will need more remedial courses and GED certification programs. Alternative graduation programs should also be emphasized. Students in these areas may also be geared towards early high school graduation programs.



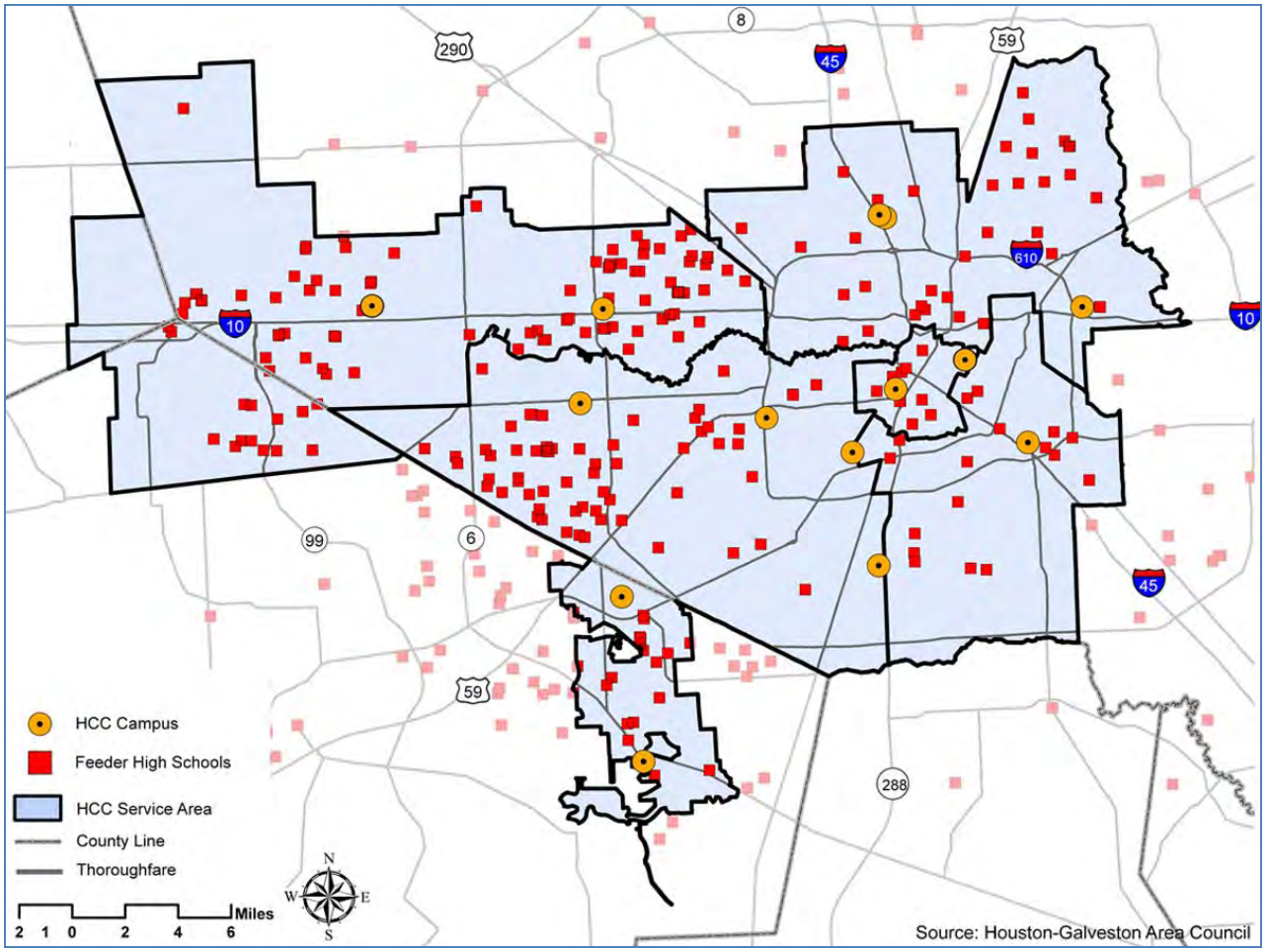
GRADUATION RATES (2006)			
ISD	ISD AVG	STATE AVG	NATIONAL AVG
Houston	42.8%	65%	68.6%
Stafford	64.1%		
Fort Bend	78.6%		
Katy	87.6%		
Spring Branch	62.3%		
Alief	44.6%		
North Forest	40.9%		

[1] http://www.earlycolleges.org/overview.html

Chart 3, Table 16: Graduation Rates - Sources: ISD information comes from each ISD noted. State Average comes from the Alliance for Excellent Education. National Average comes from the National Center for Higher Education Management Systems.

Graduation rates are seen as a fundamental indicator of school success. Almost 90% of the fastest-growing and highest-paying jobs require some postsecondary education. Having a high school diploma and the skills to succeed in college and the workplace are essential. Low-performing schools that fall within the HCC service area should be noted as students from these schools may be excellent candidates for HCC workforce development outreach and early high school graduation programs.

Identifying the ISDs with lower graduation rates and having future campus locations around those school districts with the offering of relevant coursework that supports high school education will play a key role in long-term success of HCC system by strengthening the enrollment pipeline.



Map 9: Location of High Schools that feed HCC enrollment

The map above outlines the local high schools that are feeder schools into the HCC system from the ISDs referenced. Additional ISDs outside the immediate HCC service area may also be viable feeder schools.

Early College High School Programs

A study conducted by John Hopkins University and the Associated Press named 42 high schools in the Houston area that have an attrition rate of 40% or higher. Amongst these 42 schools, 26 were located in the HCC service area. In such cases, HCC's involvement in the early college high school program can make a difference in state high school attrition rates by encouraging students to stay in school and providing them with viable education options. The table below outlines specific schools within the HCC service area that are feeding the current Dual Credit Program.

FEEDER SCHOOLS FOR HCC'S DUAL CREDIT PROGRAM	
Northeast College	North Forest ISD and the following HISD high schools – Davis, Furr, Sam Houston, Barbara Jordan, Kashmere, Reagan, Scarborough, Walthrip, Washington, and Wheatley

Table 17: Feeder Schools for Northeast College's Dual Credit Program

The early college high school program provides students the opportunity to receive a high school diploma and an associate's degree or up to two years of credit toward a bachelor's degree in the span of five years. Students take a mixture of high school and college classes in order to obtain their high school diploma and associate's degree. Each early college high school is a public school and is open to any resident in the school district. HCC operates six early high school programs throughout the Houston area. Early college high school classes also allow students to transfer credits to public universities in Texas and some private institutions. Available academic courses include English, History, Government, Biology and Economics.

Schools are designed so that low-income, first-generation college students, students learning English, minority students, and other under-represented students can benefit from programs where they can earn high school diplomas and associate degrees.

Early college high school classes are already being offered at several HCC campuses. For example, Spring Branch ISD students can attend classes at the HCC Spring Branch campus or at their high school.

1.3.2 Competition

HCC is not the only community college in the area that is looking at graduation rates, the need for GED classes and teaming with local ISDs to strengthen their enrollment pipeline with early college high school programs. The table below identifies some of these local colleges with basic comparisons on enrollment, tuition and student success as measured by the volume of degrees and certificates awarded in 2008-2009.

LOCAL COMMUNITY COLLEGE OFFERING ACADEMIC AND TECHNICAL CERTIFICATES AND DEGREES			
Community College	2009 Fall Enrollment	Tuition, Books and Fees	Degrees and Certificates awarded 2008-2009
Alvin Community College	5,189	$9,337	939
Blinn College	16,855	$12,521	1,253
Brazosport College	3,866	$11,300	208
College of the Mainland	3,916	$10,136	484
Galveston College	2,167	$11,794	373
Houston Community College	42,104	$11,522	3,577
Lee College	6,542	$15,570	1,420
Lone Star College System	55,491	$11,942	3,530
San Jacinto College District	30,449	$14,099	4,254
Wharton County Junior College	6,622	$12,015	675

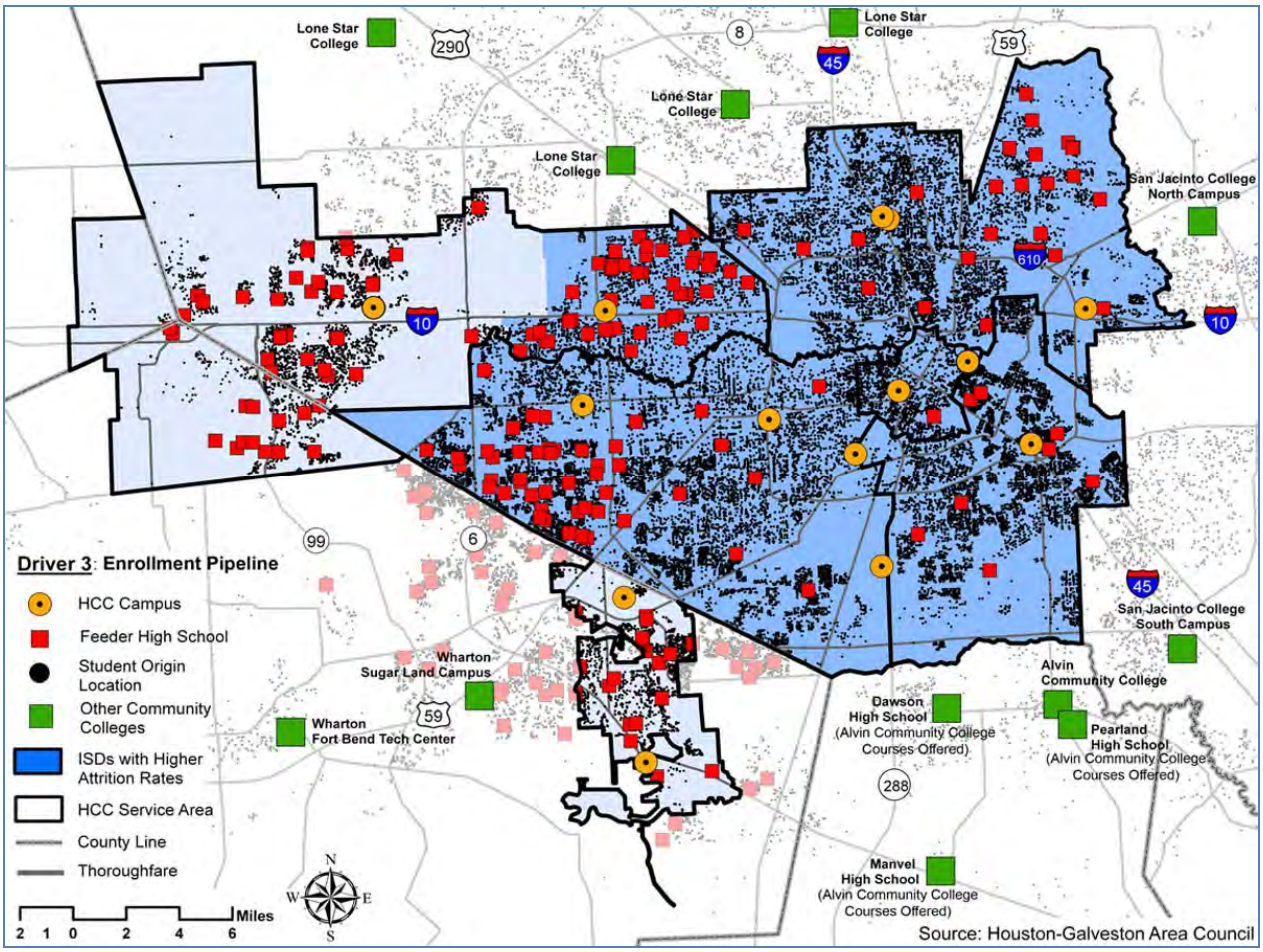
Table 18: College for all Texans, National Center for Education Statistics, Texas Association of Community Colleges

The individual colleges' programming will no doubt impact the students' selection of college. This topic will be addressed in the strategic plan. The prevue of the FMP is to factor in the impact of the location of the facilities themselves and what role that may play in attracting student enrollment. In addition to questions of programming, there is also the issue of benchmarking. An additional benchmarking study is recommended to identify colleges that are leading the nation in enrollment, engaging top level educators, attracting investment and promoting student success. These are the institutions of higher education that are also leaders in developing distance education programs and developing a network of well maintained campuses – in short they provide their students with accessibility options.

In Driver 2, Accessibility, we have already determined that for many students the cost of commuting is an important factor in deciding whether or not to attend higher education classes. With increased travel times expected, accessibility issues will be an even greater concern as traffic changes occur. Students will increasingly need to access classes near where they work and live especially during peak commute hours.

The dot density map on the following page shows the outline of the HCC service area along with current campus locations, that of the local competition and the concentration of HCC students represented by their home address. This map highlights the proximity of students to the HCC campuses and the number of students that come from outside the HCC service area. Approximately 80% of HCC's student population lives in-district while 20% of students live outside the HCC service area. It is important to note, there are additional locations for the local community colleges which fall outside of the map boundaries and these colleges are continuously seeking ways to grow – just like HCC. It is also interesting to note that many of

the competitor locations are in high growth areas like Tomball, Sugar Land, and Pearland. Several locations are also in the



Map 10: Competition Locations

1.3.3 Industry Demands

The need and direction of local workforce development will have a significant effect on Houston Community College as the skill set of the existing labor pool must change to accommodate demand. The City of Houston compiles jobs data using US Census Bureau statistics (from the 2000 US Census and the 2009 forecast) to compile local industry statistics. These statistics are broken down in the chart below to show the Top Industries for each of the HCC campus areas. Major trends include an increase in jobs for the health care industry and construction (which has recently fallen off due to economic conditions) , both of which saw significant increases in jobs in every HCC service area from 2000 to 2009. Industry losses were seen in Manufacturing, Wholesale Trade, Information, and Utilities in every HCC District.

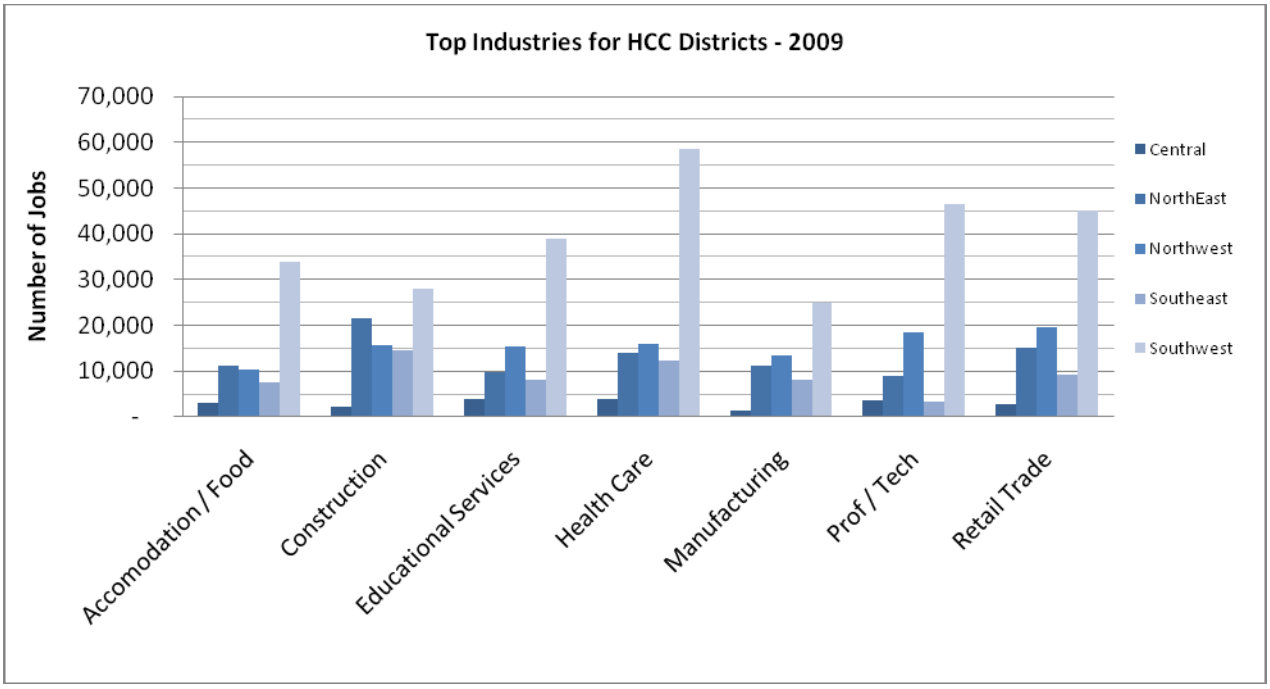


Chart 4: Top Industries for HCC Districts

Community College class offerings must change to accommodate the demands of the existing labor pool in order to fully address the shifting skill sets required in the local labor force. It is important to track the growth of specific industries in the Houston region and their attendant labor needs. Collecting current data and leveraging industry partnerships will be important for input and can help forecast future workforce needs.

Community colleges generate $276 million per year in intangible benefits associated with increased rates of higher education, including improved health, reduced unemployment, crime, and welfare spending. (HCC Foundation)[2] Career technical programs are "essential to the state's effort to reduce dropout rates and to meet employer demand for current and future jobs, many of which do not require a bachelor's degree."[3] For a strong and productive workforce, strong educational skills will be imperative. Texas must focus on efforts to improve graduation rates and to provide workforce specific training to its population.[4]

Despite a nation-wide economic downturn, Texas' economy has remained relatively strong and business leaders continue to see Texas as being a strong location for business development. CEOs have ranked

[2] http://www.hccsfoundation.org/Page.aspx?pid=261
[3] Advancing Texas, Strategic Plan for the Texas Workforce System, [FY 2010-FY2015], Texas Workforce Investment Council, Austin, Texas, 2009
[4] Texas Workforce Investment Council, *Texas Index* 2007.

Texas as the top state for job growth for the fourth year in a row.[5] Last year, Houston ranked in the top five for Best Cities for Jobs ranking conducted by Forbes magazine.[6] Understanding the local job market, following industry demands and offering relevant courses at future locations will help drive enrollment.

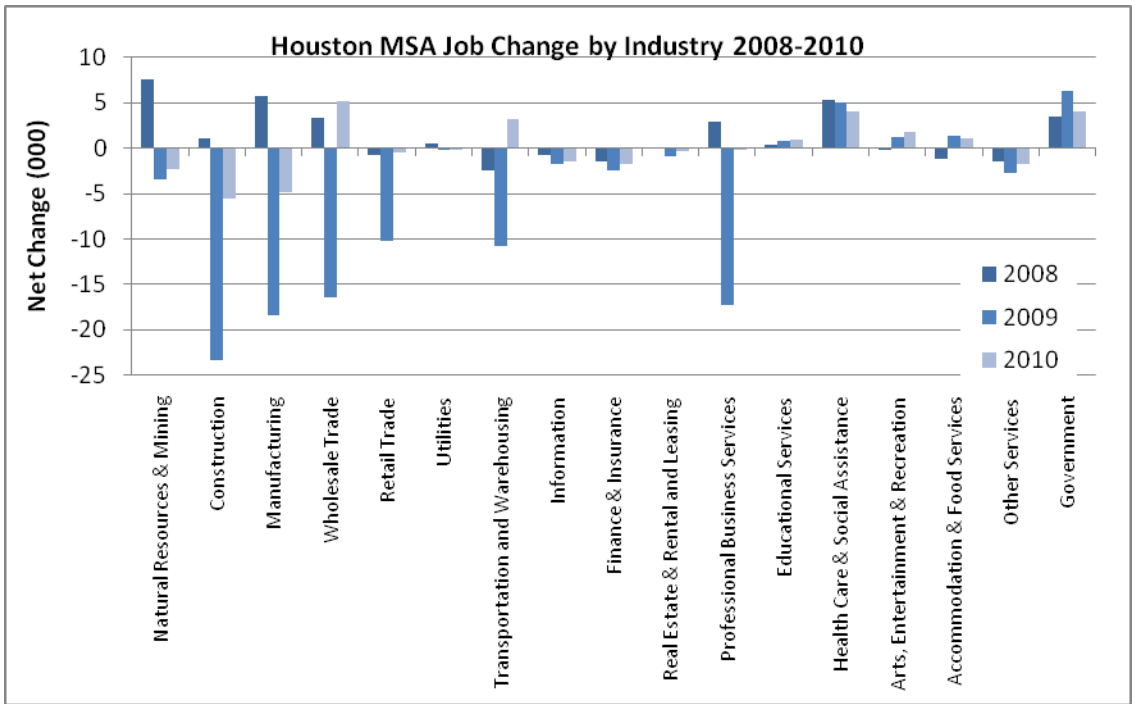


Chart 5: Houston MSA Job Change by Industry 2008-2010 – Greater Houston Partnership (GHP)

The chart above shows the most recent change in employment statistics while the chart below offers a forecast of employment through 2016. Tracking the current and future industry demands will help to: Identify partnership opportunities, required programming and assist in facility planning.

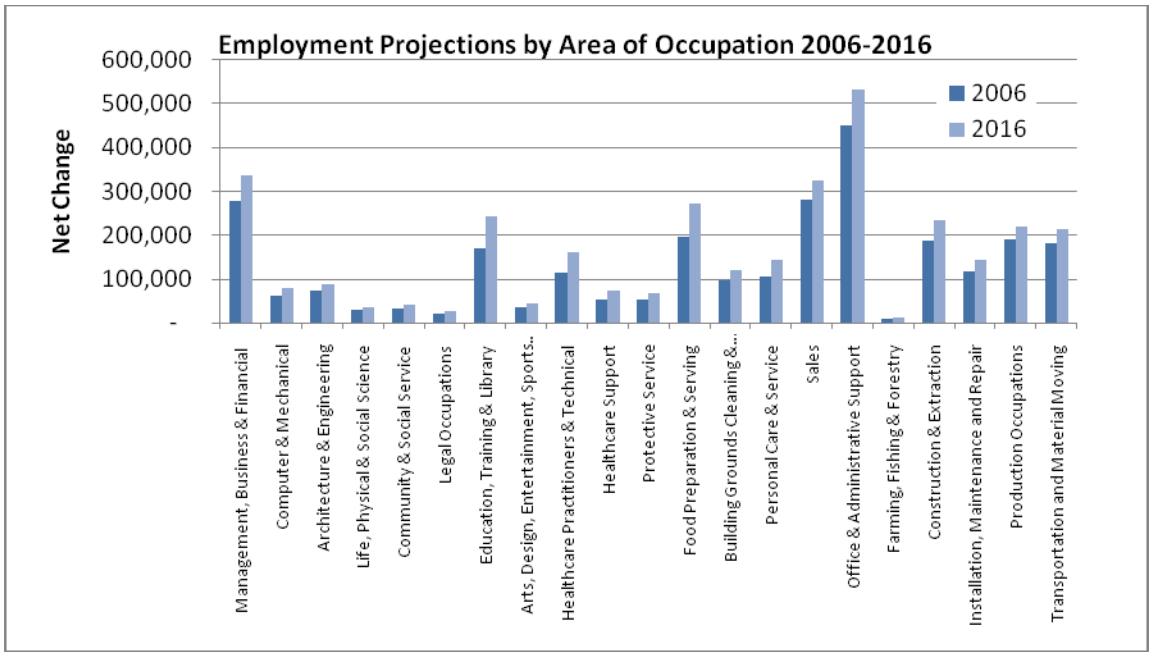
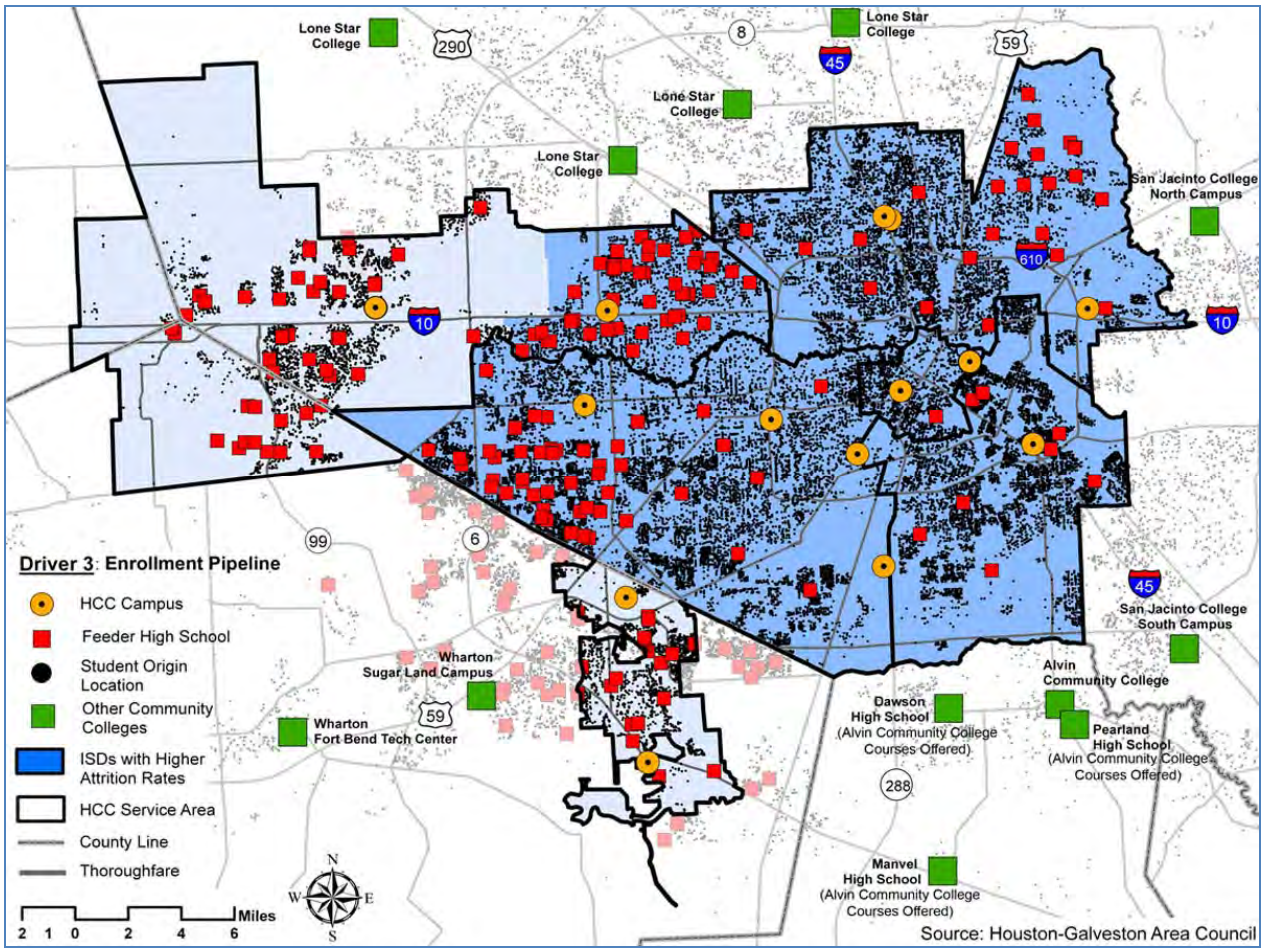


Chart 6: Employment Projections by Area of Occupation 2006-2016 - GHP

[5] Chief Executive Magazine, January/February 2009.
[6] Forbes.com, April 14, 2009.

1.3.4 Summary of Enrollment Pipeline – Driver 3

HCC has been successful in creating a pipeline from area high schools and has been innovative in creating student retention programs to ensure student success rates. The map below outlines the local high schools that are feeder schools into the HCC system from the ISDs referenced. Additional ISDs outside the immediate HCC service area may also be viable feeder schools.



Map 11: Summary of Driver 3 impact on future HCC site selection

1.4 Summary of Drivers

The location of future facilities is critical to the successful delivery of HCC services. The FMP plays an integral role in the overall planning process by providing a guideline for how to evaluate and best identify prime facilities locations. The map below is a compilation of highest growth areas for each of the three main drivers identified in this study and outlined in the figure at right.

Locating facilities in areas with the highest growth increases the potential utilization of the facility which also implies increased enrollment. As the map below highlights, growth in the greater Houston area through 2035 will be significant and provides HCC with many choices for expansion. Supplemental studies will help to determine facility composition and timing of construction. This information will feed the bond package preparation process and provide useful support to the final development of VISION 2035.

The map was compiled by developing a cumulative index of all three driver summary maps. Because expansion of current facilities will be largely determined by future studies already outlined in this report, a 2-mile buffer was added around each existing facility.

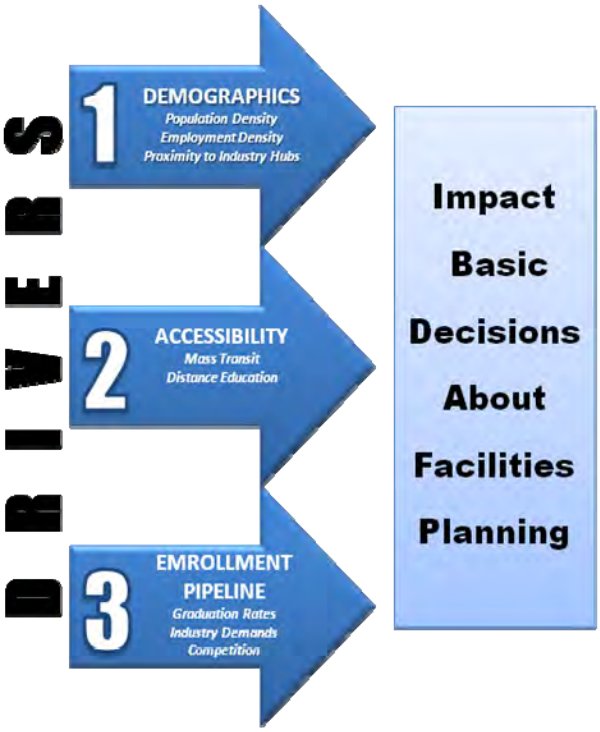
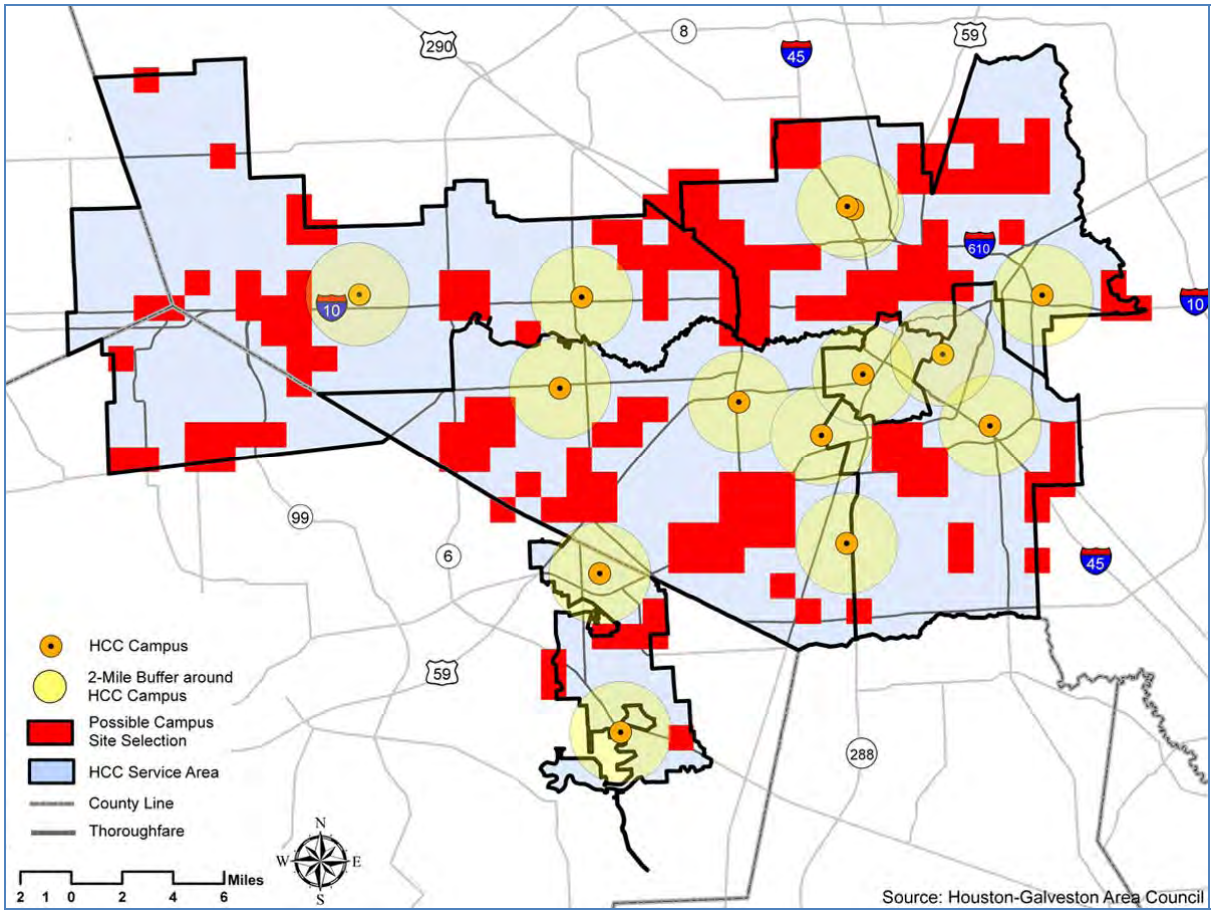


Figure ?: Facility Location Drivers



Map 12: Summary of all three Drivers impact on future Northeast College site selection

The resulting composite map identifies the following areas that, under the given criteria, suggest the optimum growth potential for future HCC locations:

- **Northeast College** - Greater Inwood & Acres Home (around US290 Corridor), Greater Heights (around I-10 corridor), Northshore Village, Greater Fifth Ward, Kashmere Gardens, Settegast (610-US-90 junction), East Little York, Homestead (East of US-59 corridor) and Cloverleaf (around I-10 corridor).

HCC FACILILITIES MASTER PLAN

NORTHWEST COLLEGE

INDIVIDUAL SUMMARY BY DEMOGRAPHICS

DRAFT COPY

1 DRIVERS

For HCC to effectively expand to meet future demand, it must develop an understanding of the changing landscape in which it finds itself. The location of future facilities is critical to the successful delivery of services to the community. The FMP, used in combination with HCC's strategic plan, which will be published later in the year, plays an integral part in the overall planning process by providing a guideline for how to evaluate and best identify prime facilities locations.

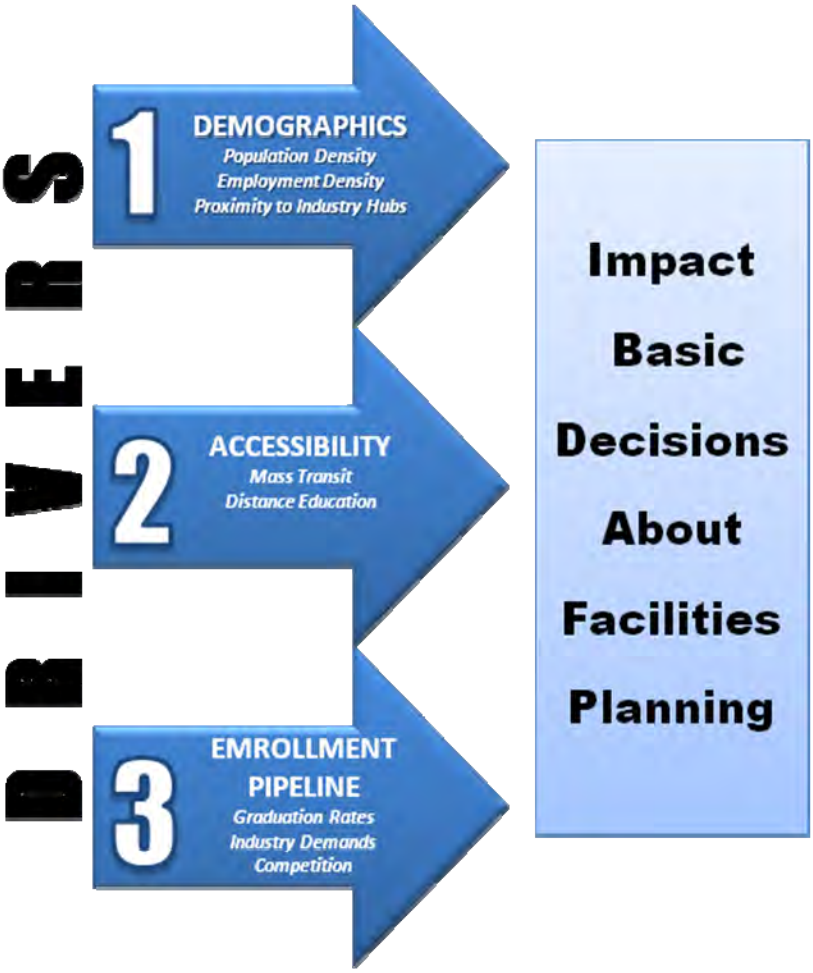


Figure 8: Facility Location Drivers

When researching factors that influence facility development at HCC, many factors emerged including:

- Population
- Economy
- Transportation Access
- Economic Growth
- Facilitate Organic Growth
- Community Redevelopment
- Feeder Patterns
- Funding
- Strategic Planning
- Programming
- Educational Delivery System
- Enrollment
- Return on Investment
- Proximity to Other HCC Campuses
- Take what you can get
- Budget
- Competition
- Benchmarking

Ideally, the research behind the need for a new facility would include all of these factors along with consideration of the needs of the entire system to prioritize locations. To narrow the scope of the discussion, those elements that have the most significant impact on facility development have been short listed into the chart to the left.

By examining and truly understanding changes in the three short listed drivers**,** HCC will be able to carefully plan and maintain the managed growth of the College. Once identified, these drivers were then reviewed for accuracy by planning and development professionals at the City of Houston and the Houston-Galveston Area Council, as well as, noted researchers in the areas of population and urban growth. These drivers are represented by tangible data that is collected periodically by reliable sources and will be periodically updated and available for reanalysis and incorporation into the model.

Using this report, decision makers can assess the best location for future facilities in keeping with the College's goals and VISION. The FMP is one tool in the overall planning strategy and must be considered in connection with HCC's overall VISION, strategic, academic, and financial plans. Where facilities are located, their composition, and how they function must reflect the goals of the institution and further those objectives.

1.1 Demographic

Demographics in the HCC service area and changes to the service population will drive questions of facility location and type. Associated with demographics are the issues of programming (which is covered in the strategic plan), current utilization and capacity (studies are recommended in both areas). Students frequently attend a specific campus based on proximity to their homes or workplace. Therefore, the two greatest factors that make up questions of demography, as they relate to the future needs of HCC, will be residential density and employment density - determined by how many people are living or working in an area.

1.1.1 Population Density

The key to understanding the demographic outcomes for the region are most important in terms of population densities. Concentrations measure the number of people in a defined area. While forecasts predict increases in populations across the board, it is where this increase is sharpest that is most important because it will have the greatest impact on facilities planning.

The Brookings Institute has labeled Houston as one of the "Next Frontiers" based on its high growth, high diversity and high education compared to the 100 largest metro areas in the US – according to the Brookings Metropolitan Policy Program. The HCC service area contains almost all of Harris County and parts of Fort Bend and Waller Counties. The service area is home to over 2 million residents. In context with the HCC service area, the population density in the year 2010 shows a high rate of density in:

- satellite cities such as Katy

The tables below breakdown the 2009 population by gender for HCC and of the Northwest College.

POPULATION INFORMATION, 2009 EST.	
Total Population	2,140,484
Adult Population	1,566,791
Male	50.3%
Female	49.7%

Table 11: Houston Area Population Information – H-GAC 2035 Regional Forecast

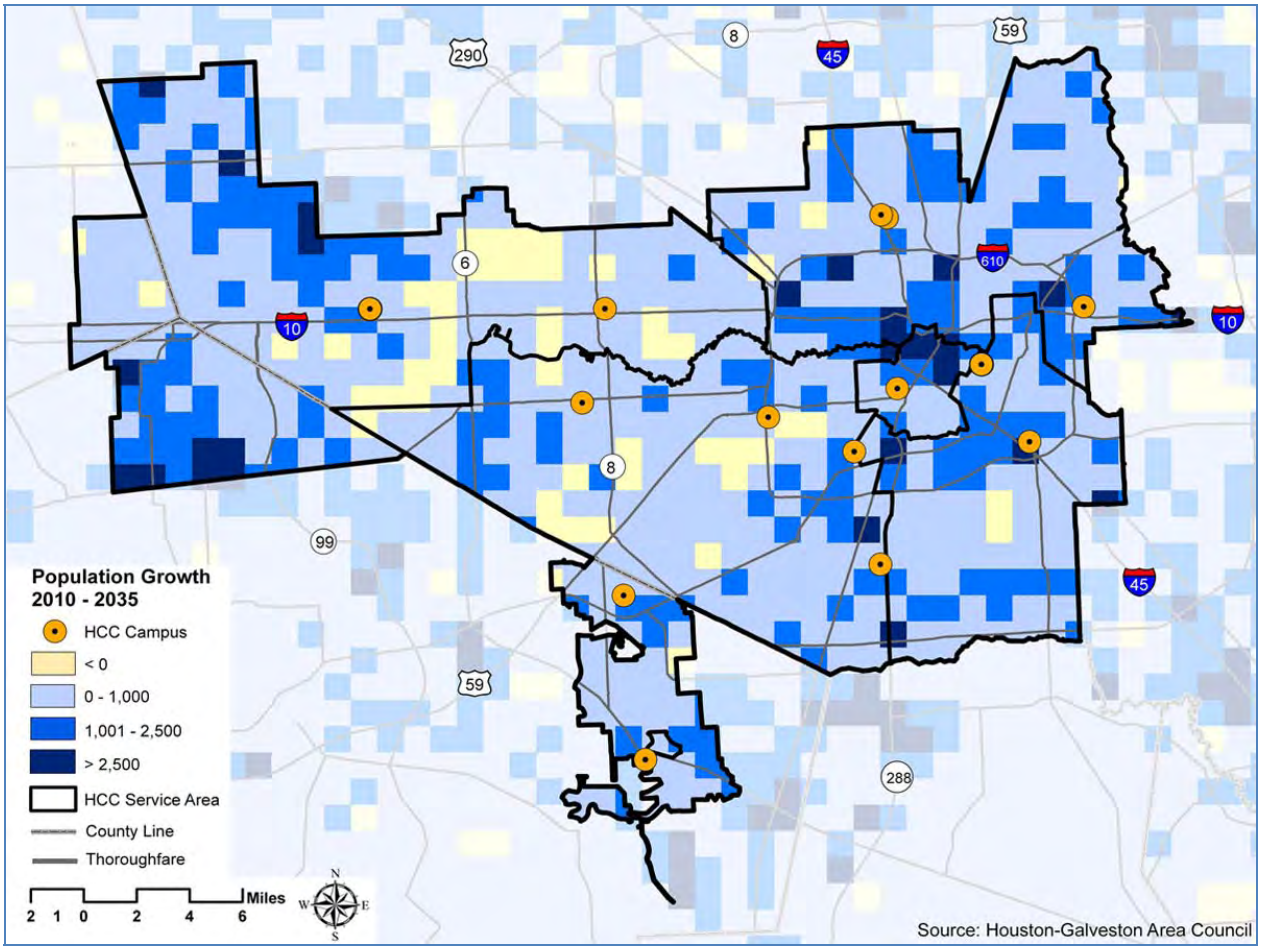
POPULATION IN HCC COLLEGES			
HCC College	**Current Enrollment**	**2010**	**2035**
Northwest	62,681	344,291	490,341

Table 12: HCC Northwest College Enrollment – H-GAC 2035 Regional

Population Growth (change) between the years 2010 – 2035:

Simply looking at the population density will not help us understand the areas experiencing the largest growth. We have to understand the growth pattern and identify areas that will undergo change. In the map below, the dark blue areas highlight the highest population growth between 2010 and 2035.

- In the West and Northwest part of Houston, areas in Katy (Cinco Ranch west of SH99) and in the Barker Cypress and Cypress areas between I-10 and US-290 area will have higher population growth.



Map 2: Population Growth between years 2010 – 2035 (Data source: H-GAC)

Placement close to population growth centers creates an opportunity to capture:

- Students requiring GEDs
- Early College High School students
- The unemployed seeking training/retraining
- Students that may require public transport to access education

1.1.2 Employment Density

Houston and its surrounding ETJ are home to more than 1.7 million jobs. Houston's employment growth has exceeded the national employment growth for several years. By 2035, employment will see a 40% increase to 613,000 jobs and the ETJ will see an increase of 160,000 jobs or a projected 50% increase. The following charts show job growth expectations for the HCC Service Area.

HOUSTON AREA EMPLOYMENT 2007 AND 2035		
	2007	**2035**
City	1,531,000	2,115,000
ETJ	160,000	320,000

Table 13: Employment Growth – H-GAC, 2035 Regional Growth Forecast

JOBS BY HCC COLLEGES: 2010 AND 2035		
HCC COLLEGES	**2010**	**2035**
Northwest	208,000	273,000

Table 14: Job Growth in Northwest College - H-GAC

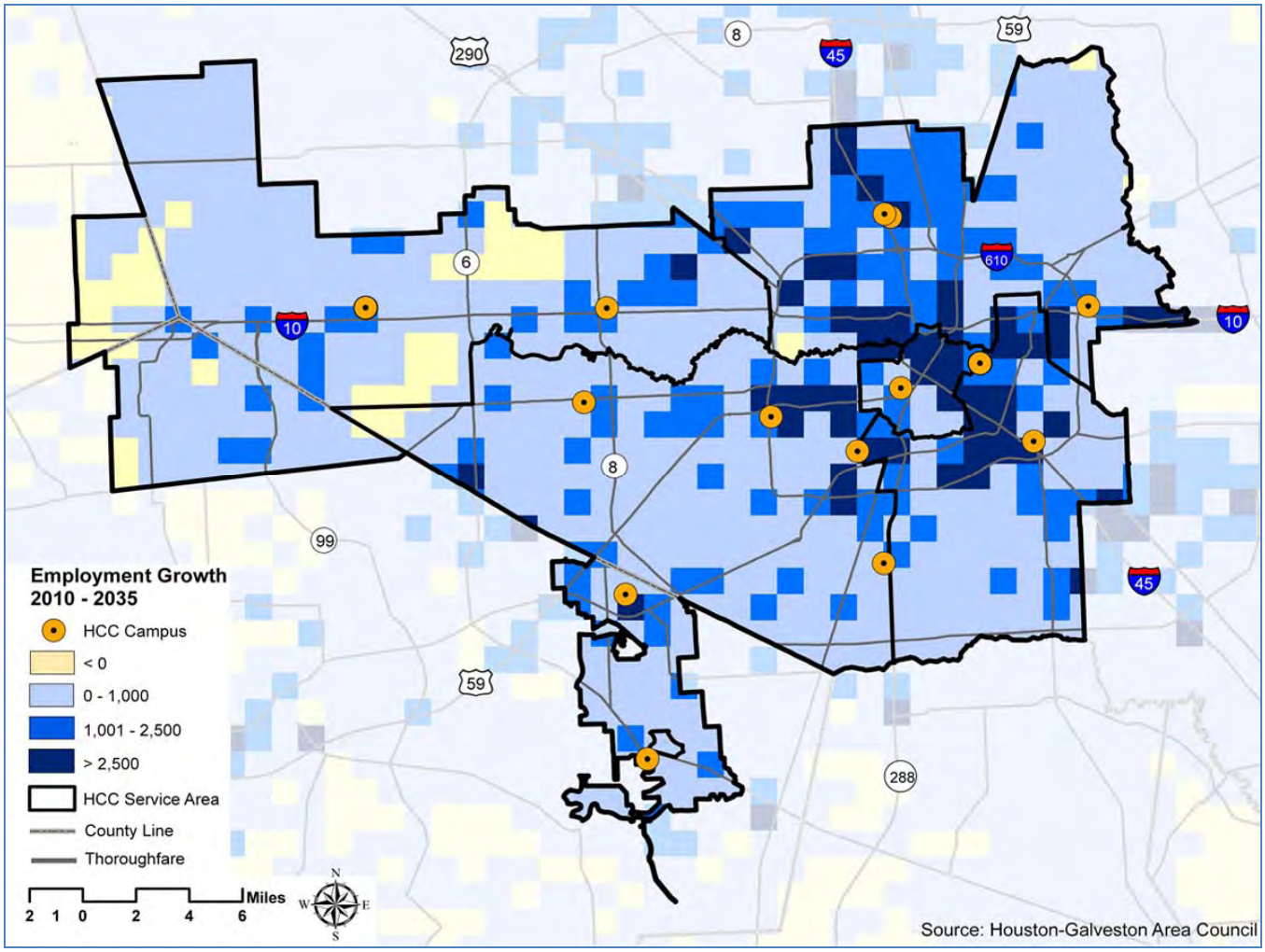
Employment density in the year 2010 shows high employment concentration in the Energy Corridor and the Northwest Freeway corridor.

Because HCC students are more likely to attend school near where they work or live, it is important to note where the major employment centers of Houston are located. As traffic and travel times become increasingly important to Houston motorists this connection will only become more pronounced.

Employment Growth (change) between the years 2010 – 2035:

The map below outlines the areas experiencing the highest employment growth levels between 2010 and 2035.

- In the West around I-10 corridor between SH6 and Beltway 8 along with Katy area will see higher employment growth.
- In the Northwest part of Houston, areas around US-290 corridor between SH6 and Beltway 8 along with Spring Branch will see a higher employment growth.



Map 3: Employment Growth between years 2010 – 2035 (Data source: H-GAC)

Placement close to employment growth centers creates an opportunity to capture:

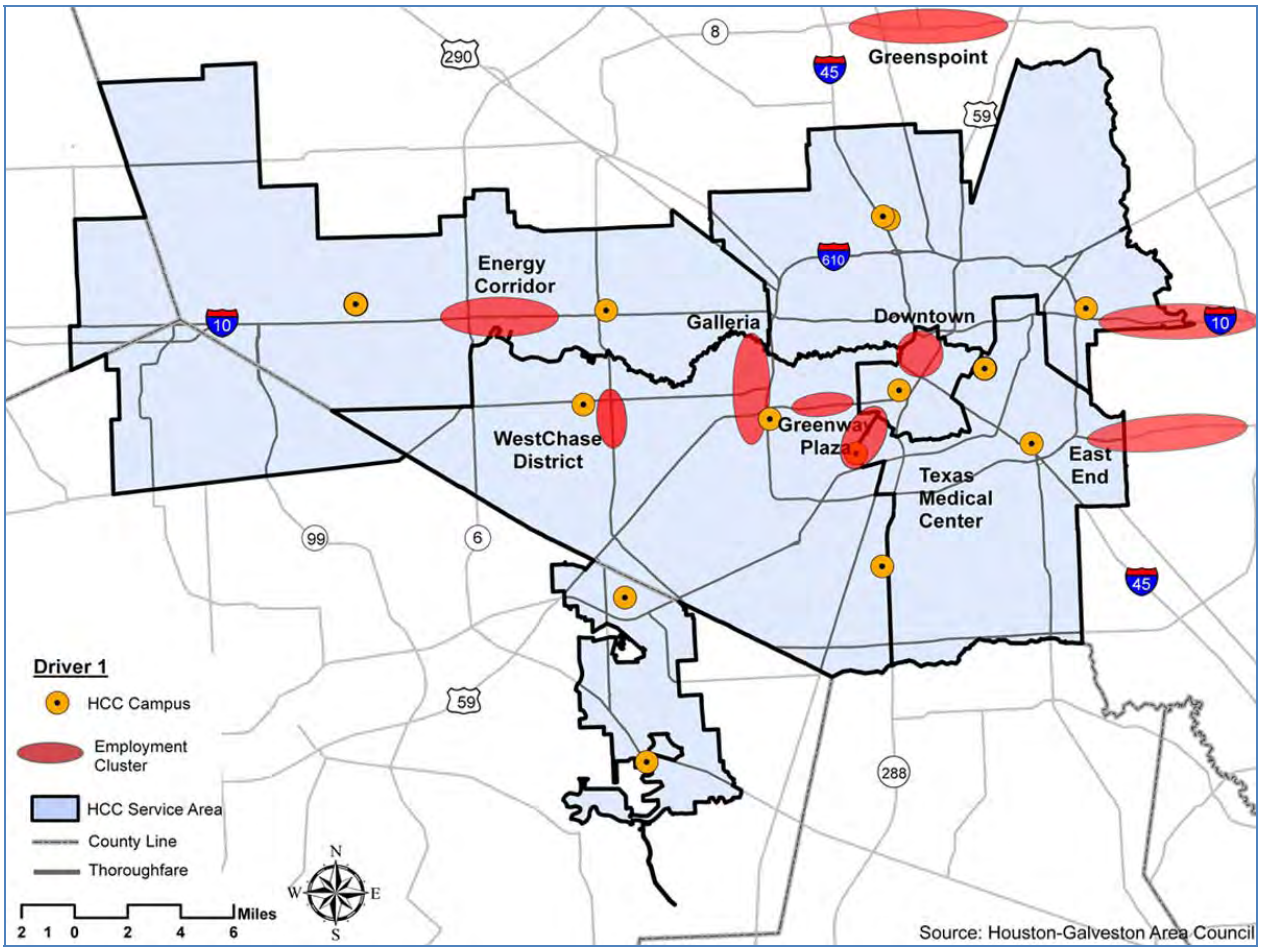
- individuals seeking convenient training to upgrade their skill set,
- individuals seeking leisure learning opportunities,
- creates a useful venue for corporate retreats and
- provides partnership opportunities with industry leaders to service their training requirements.

1.1.3 Proximity to Industry Hubs

Houston is the center for many key industries including health care, aerospace, finance, petrochemical and oil refining. These industries are generally centralized in employment and industry clusters around the City and also serve as feeders for many potential students who are looking to advance their professional development through part-time enrollment and technical training courses. These employment clusters include Downtown, the Texas Medical Center, the Galleria, Greenspoint,

Westchase, Clear Lake, Greenway Plaza, and the large petro-chemical and refinery centers located mainly on the east side of the City. As Houston continues to evolve, new hubs will develop and others will decline. Tracking these changes is important in charting the growth of HCC.

The HCC campus system is spread out over a considerable geographic area. The Central Campus is well placed in the downtown area and is easily accessible to the Mid-Town and inner City population centers and Downtown and Midtown business districts. Coleman College is located in the Texas Medical Center and offers specialized programs for the healthcare industry. The Spring Branch and Westgate campuses are situated near the employment hubs in the Energy Corridor, while the industrial and Port areas of the East End are near both the Northeast and Eastside Campuses.



Map 4: Employment Clusters

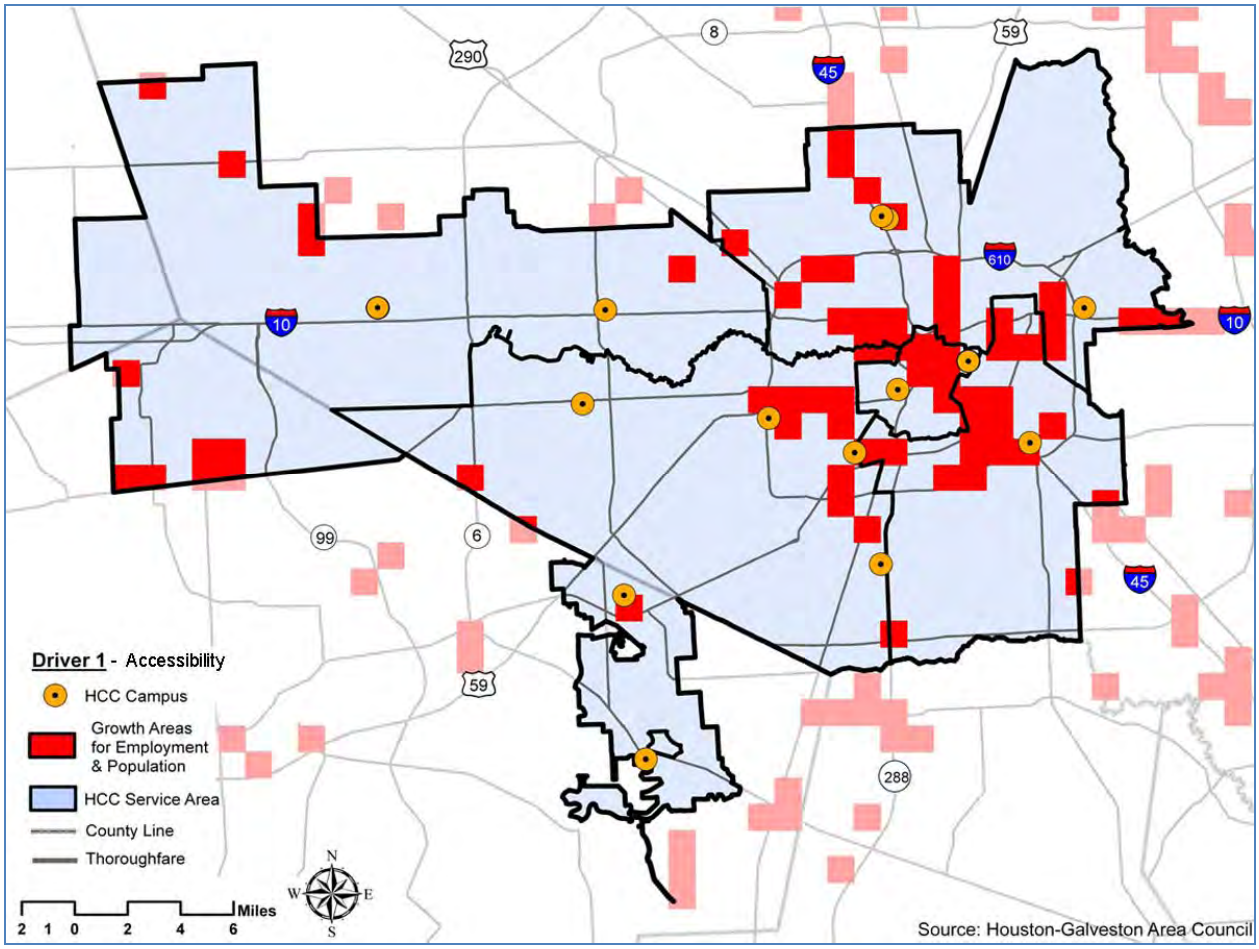
Energy Corridor

Strategically located along I-10, midway between Beltway 8 and the Grand Parkway, the Energy Corridor is home to a broad range of companies, from energy to healthcare, engineering, and financial services. Currently, the Energy Corridor is the fourth largest employment center in the region with more than 73,000 employees.

1.1.4 Summary of Demographics – Driver 1

The two greatest factors related to demographics will be residential density and employment density - determined by how many people are living or working in an area. Students attend a specific campus largely based on proximity to their homes or workplace, thus making it important to track the changes in these demographics to uncover the most likely sources of future enrollment.

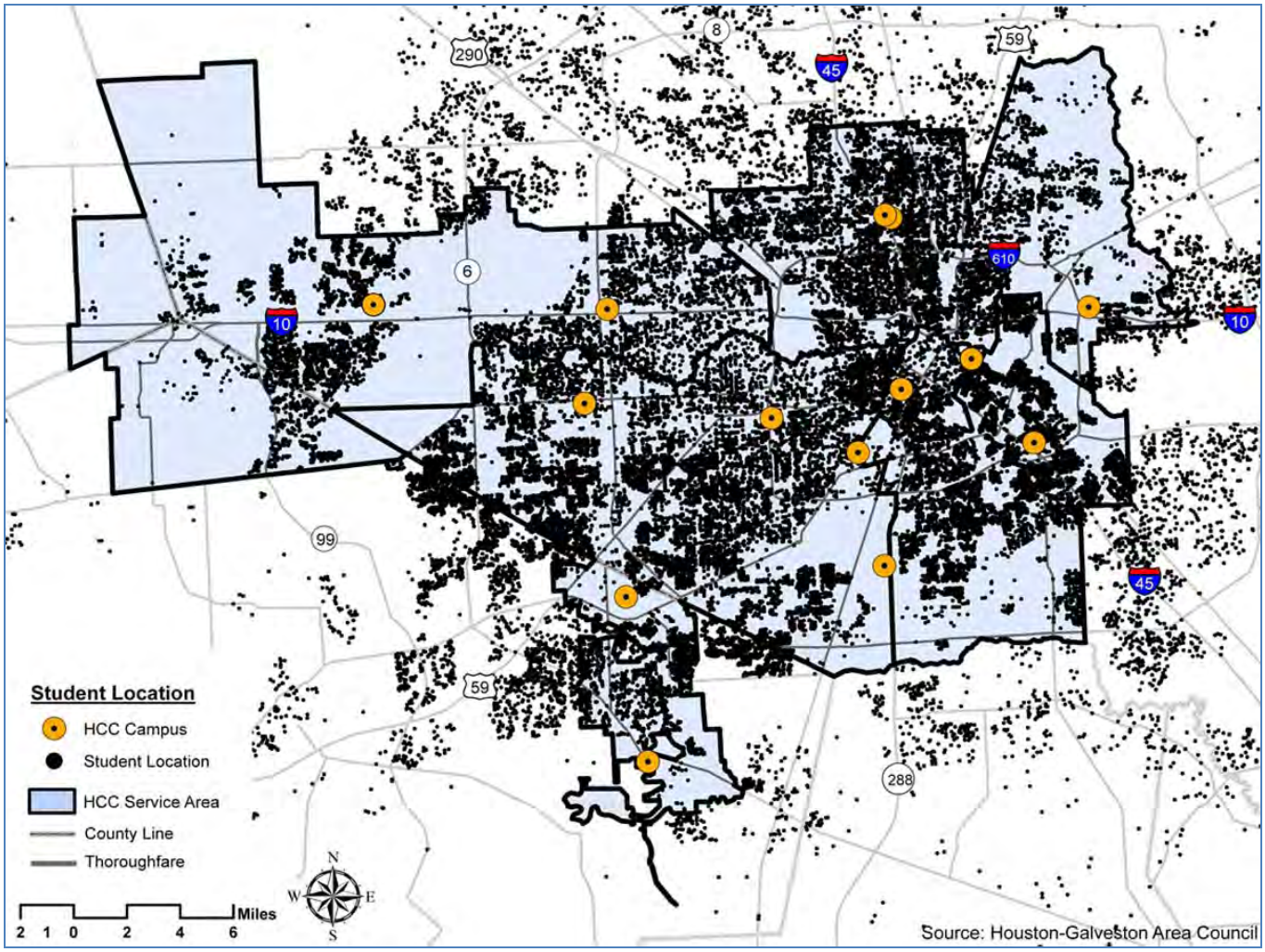
We have defined Driver 1 (Demographics) as combining the growth in population with employment density and refining them to the most significant areas of impact. It yields a concentrated view of critical growth areas. These areas are highlighted in the map below. These will be the focal points for HCC when considering placement of new facilities and possible expansion of existing facilities in order to leverage the projected growth.



Map 5: Summary of Driver 1 impact on future HCC site selection

1.2 Accessibility

We have defined Driver 2 (Accessibility) as a combination of transportation connectivity to future HCC campuses and trending growth in distance education as pertains to programming and campus planning. The dot density map below shows the outline of the HCC service area along with current campus locations and the concentration of HCC students represented by their home address. This map highlights the proximity of students to the HCC campuses and the number of students that come from outside the HCC service area. As the Houston area continues to expand, the commuter rail and light rail network is increased and HCC attracts more out of district students, it is vital to understand the role of transportation and the importance of providing students with necessary accessibility to transit hubs and employment centers.



Map 6: Student Location year 2009 - HCC

Approximately 80% of HCC's student population lives in-district. The dot density map above shows that many also live in close proximity to an HCC campus. However, 20% of students live outside the HCC service area which suggests that locating future campuses near transit, light rail and freeway corridors would provide more accessibility to the students to get connected with the HCC campuses and may result in increased enrollment.

Accessibility takes into account the ease with which people can take advantage of HCC services and the degree of convenience or difficulty students experience utilizing facilities. Reviewing accessibility is driven by an examination of area transportation infrastructure and the internal role of non-traditional and online course offerings. Generally speaking, the more choices students have for *how* to get to campus, the more positive an experience they will have.

1.2.1 Mass Transit

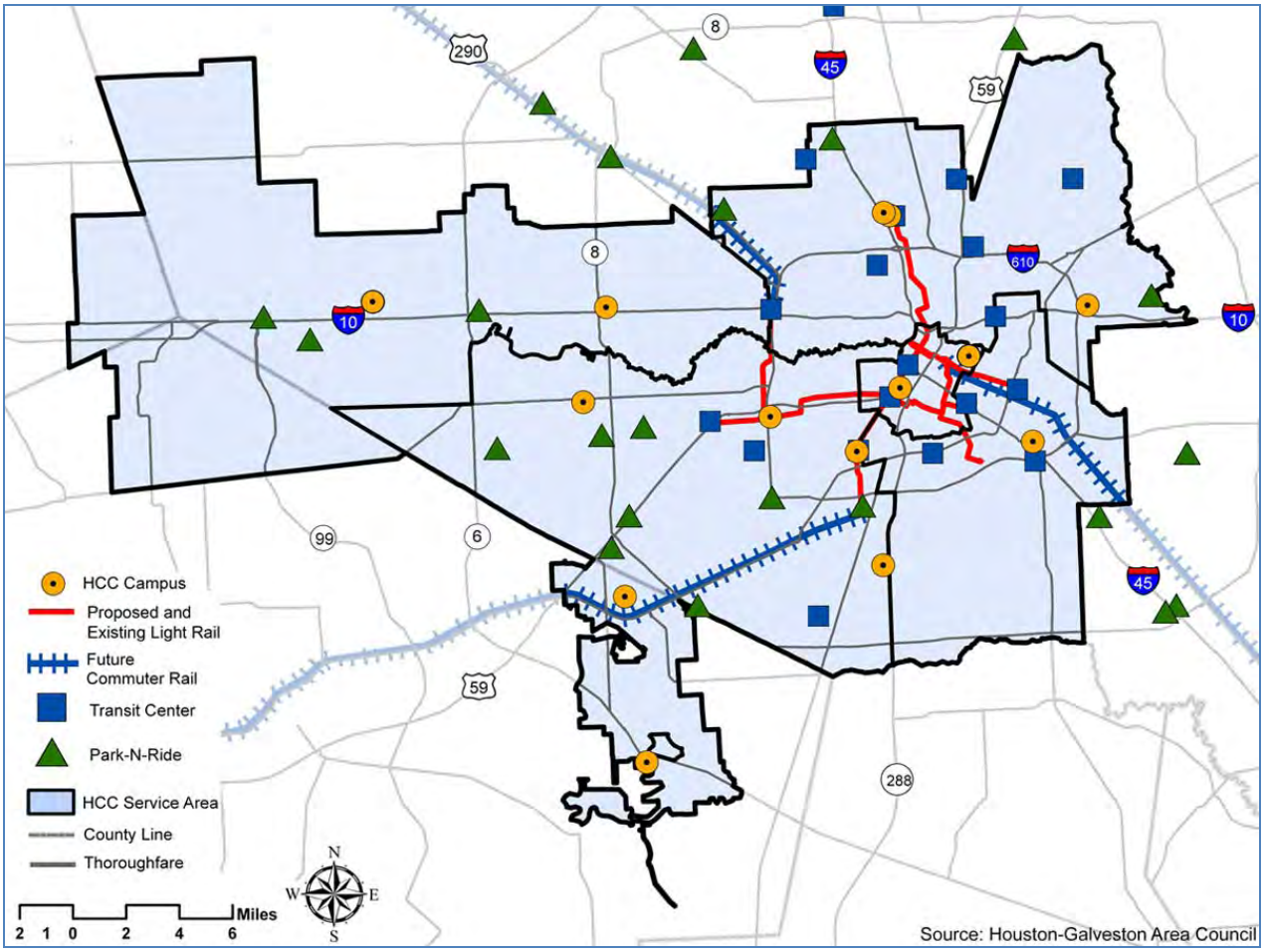
For many students the cost of commuting is an important factor in deciding on whether or not to attend higher education classes. The convenience of mass transit located near HCC facilities can increase access to higher education opportunities especially for economically disadvantaged students who may not have means for private transportation.

According to the H-GAC City Mobility Planning Travel Demand Model the number of work trips is expected to increase by 67% during the study period (through 2035) and travel time in the City and ETJ is expected to increase by two hours. Plans for the future transportation infrastructure expansion to address this projected growth include an additional 14% increase in overall street capacity over the next 25 years including 8,256 street lane miles or 13% in the City and 14,705 or 23% more street lane miles in the ETJ.

With increased travel times expected, accessibility issues will be an even greater concern as traffic changes occur. Students will increasingly need to access classes near where they work and live especially during peak commute hours. Many more students may choose to bypass traffic by utilizing mass transit options that can carry them from work or home to class in order to avoid transit delays.

Planned Transit Network Additions

In addition to the extensive METRO bus network across the greater Houston area, the freeway system and commuter rail and light rail are all critical for HCC students. The map below outlines the Houston transportation network with existing and planned transit facilities. The additional mass transit will provide greater mobility for all Houstonians and has the potential to increase enrollment.



Map 7: Light-Commuter Rail Corridors, Park-n-Ride, Transit Center Locations - H-GAC

Commuter Rail

US 290 and Hempstead Corridor from Loop 610 to FM 2920 - Studies are underway for the expansion of commuter rail lines that will help connect thousands of Houston riders with existing and proposed rail lines. METRO proposals suggest the creation of 40 miles of commuter rail line, where to put the stations, and where in Hempstead to put the terminus.

The North Line, as presently envisioned, would start somewhere near the junction of US-290 and Loop 610 and head north along an existing freight rail line ending at FM 2920. Union Pacific's RR "Eureka" line runs into the Eureka rail yard inside Loop 610 near Eureka Street near the Northwest Mall at the Loop 610/US-290 interchange. The line could begin carrying passengers as early as 2013.

Present plans anticipate that commuter trains would use the rail by day and freight trains by night. This rail line could potentially bring in thousands of students from the Jersey Village area and other parts of Northwest Houston that do not currently find the HCC campuses easily accessible. Students would be able to connect to other rail lines and access HCC Campuses via the Uptown Corridor (with a connection at the Northwest Transit Center) or the existing Main Corridor (with a connection at the new Burnett Station).

Light Rail

The following lines are anticipated to be opened by 2012 as part of the METRO Solutions transit system expansion.

LINE NAME	DISTANCE	ROUTE
Uptown/Pink Line	4.7 mi (7.6 km)	Southwest corner of US 59 South/I-610 West interchange to the Northwest Transit Center

Table 15: Metropolitan Transit Authority of Harris County

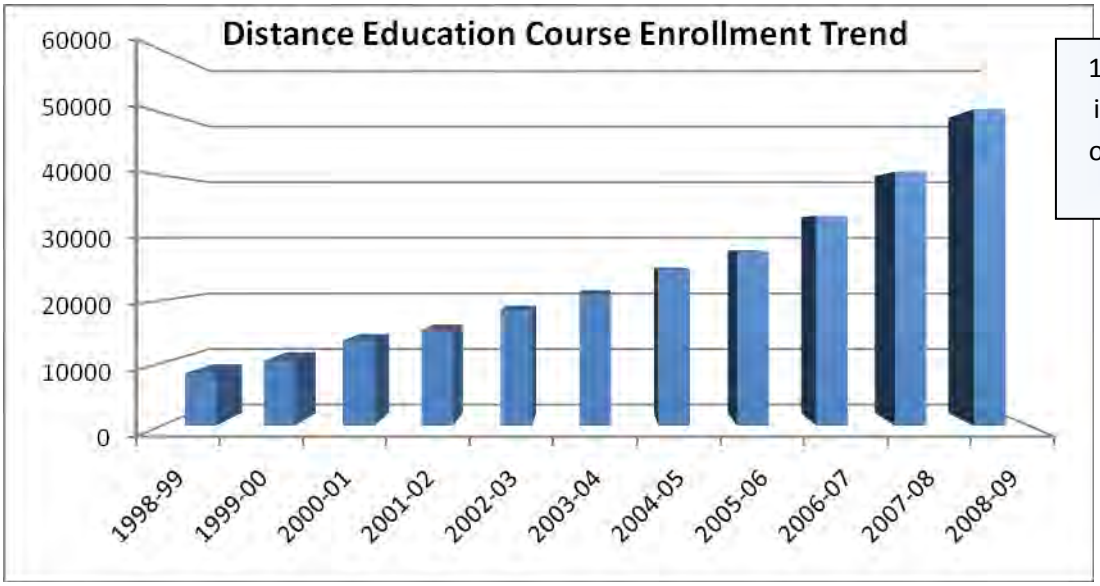
The current plans for proposed METRO light rail lines reveal the possibility of serious inter-connectivity between certain campuses.

The certain Campuses will not be accessible by rail and are not expected to receive a high impact in student enrollment from the proposed rail lines. This holds true in West Houston where the rail will not fall near the Spring Branch or Westgate campuses.

1.2.2 Distance Education

As online learning becomes more available and more attractive to students, increased enrollment in online classes will have an impact on the need and design of future facilities. It is important to note that although much of online learning is done without the use of a traditional classroom environment, preliminary research shows that students will continue to desire face-to-face interaction with faculty and other students, they will also use testing facilities and visit the campuses for administrative services. Matching the ease with which students can access courses and services online and in the physical space will present a number of challenges and opportunities in terms of campus planning.

A recent survey published by the Instructional Technology Council in March of 2010 on Distance Education showed that from Fall 2007 to Fall 2008 (the most recent full year of available data) campuses reported a 22% increase for distance education enrollment while on-campus enrollment for the same year only reported a 2% increase nationally in enrollment. Another study conducted by the Sloan Foundation reported a 17% growth in distance learning enrollments while on-campus enrollment only increased by 1.5% (Allen & Seaman, January 2010). The Sloan Foundation study reports that over one-quarter of all higher education students are now taking at least one online course. There has been much speculation about when this growth will plateau, but it is expected to continue for the near future.



103% increase in enrollment over the last 5 years

Chart 2: HCCS Distance Education Records, 1998 to 2003, HCC OIR DataMart Files, Fall 2003 to Summer 2004; End of Term 2005 & 2009

HCC distance education trends follow this same national movement with increasing numbers of students enrolling in distance education courses. The undisputed growth in online learning will impact facility utilization therefore it is important to maintain accurate utilization records to determine the need for new facilities. In addition to determining need, the composition of facilities will also be impacted as online courses currently require some testing at on-site testing centers, students continue to seek administrative services on campus as well as gather for study groups or to socialize.

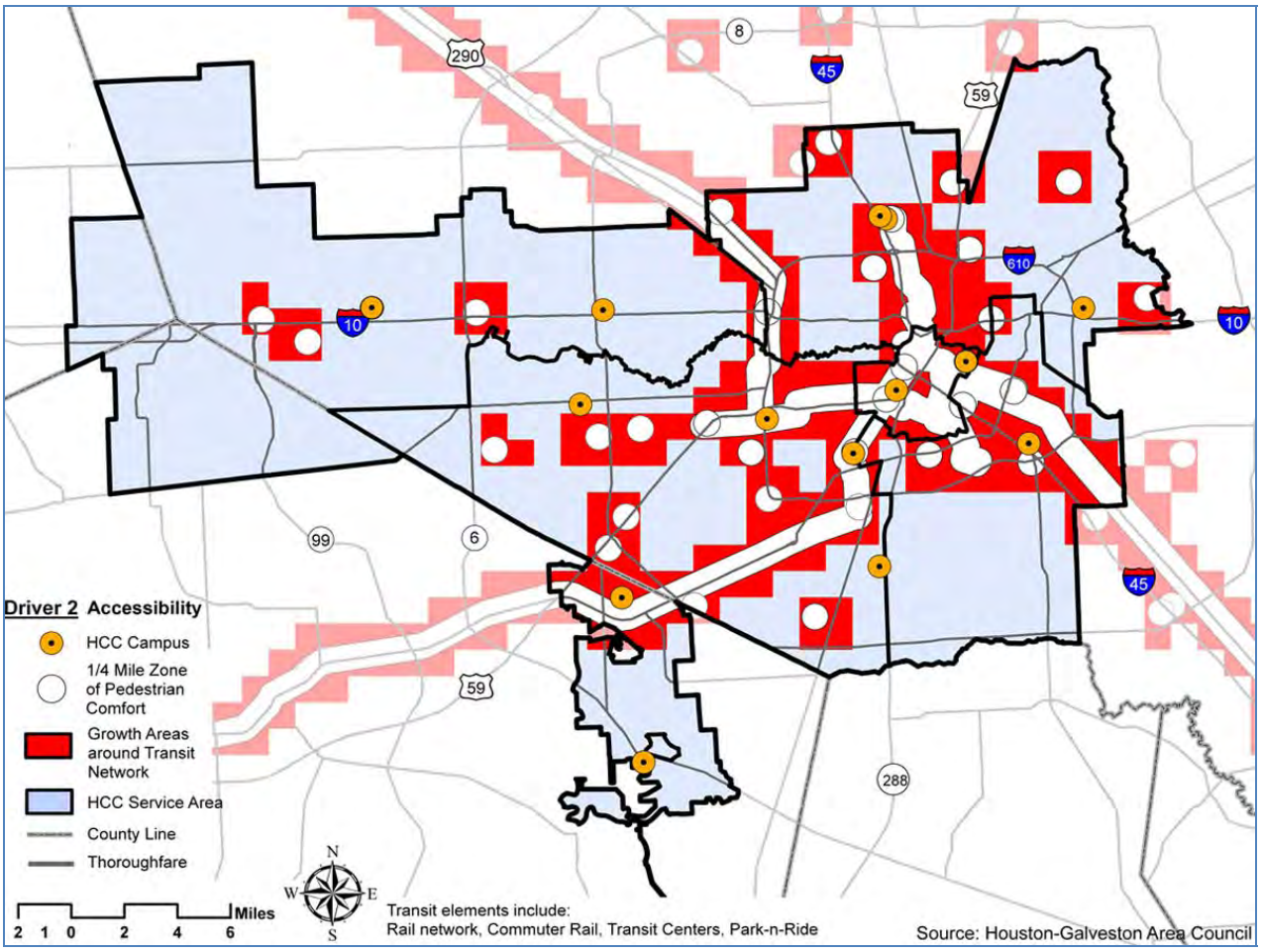
Recommended utilization and capacity studies will help to further define how existing space is being utilized and how to optimize it. By combining various statistics, these reports should help to forecast the need for new facilities as well as help to define their composition to best address the needs of the growing population of online students. The role of technology as it applies to adequately developing the facilities for this purpose should be a particular focus within the proposed studies.

1.2.3 Summary of Accessibility – Driver 2

Accessibility takes into account the ease with which people can take advantage of HCC services and the degree of convenience or difficulty students experience utilizing facilities. Accessibility to transit hubs and employment centers will become increasingly important as the Houston area continues to expand, the commuter rail and light rail networks are increased and HCC attracts more out-of-district students.

As online learning becomes more available and more attractive to students, increased enrollment in online classes will have an impact on the need and design of future facilities. On-line students will also need to travel to various campuses from time to time for testing, study groups, attend events or to address administrative issues therefore transportation and overall accessibility will impact them as well as the traditional students.

Accessibility is a significant factor in enrollment and must therefore be considered in facility location. The map below outlines the existing transportation network i.e. park-n-ride lots, transit centers and light rail and commuter rail networks that is being planned along with a quarter mile buffer around those transportation elements. The resulting red areas on the map are the recommended locations for new facilities to be considered. A quarter mile buffer is a standard urban planning measurement as research has proven that individuals are more likely to take transit if the destination is located within buffer zone as the distance is considered walkable.



Map 8: Summary of Driver 2 impact on future HCC site selection

1.3 Enrollment Pipeline

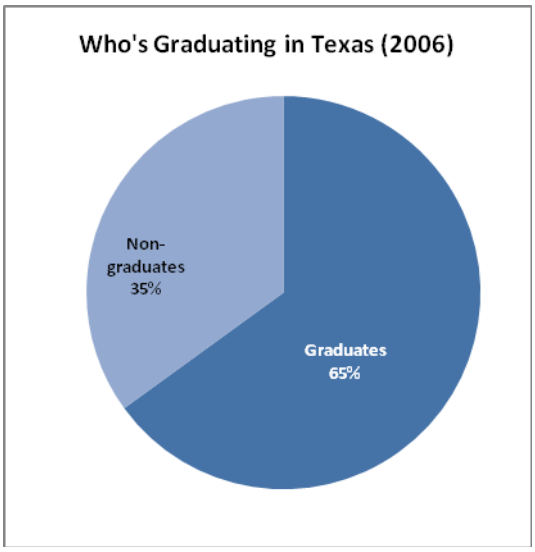
We have defined Driver 3 (Enrollment Pipeline) as the factors that identify and define the needs of the client, HCC students, specifically Graduation Rates and Industry Demands. These factors impact the development of future HCC facilities and significantly impact the make-up and needs of future student populations. Graduation rates and specific educational needs of incoming students are balanced with the employment needs of the Houston area industries and the skill sets they require when seeking new employees. Competition is also considered as HCC must compete with nine local community colleges to attract students.

1.3.1 Graduation Rates

The following statistics on high school graduation and college attendance come from Early College High School Initiative – started in 2002.

- Young people from the middle-class and wealthy families are almost five times more likely to earn a two- or four-year college degree than those from low-income families.
- For every 100 low-income students who start high school, only 65 will get a high school diploma and only 45 will enroll in college. Only 11 will complete a postsecondary degree. *(*Source: JFF analysis of data from the National Educational Longitudinal Study for students from the lowest-income SES quintile. The period of time measured includes outcomes from students' entry as ninth graders in 1988 to the year 2000.)
- Nearly half of US African-American students and 40% of Latino students attend high schools in which graduation from high school is not the norm. In the nation's 900 to 1,000 urban "dropout factories," completing high school is a 50:50 proposition at best. (*Source: Robert Balfanz and Nettie Legters. 2004. Locating the Dropout Crisis—Which High Schools Produce the Nation's Dropouts? Where Are They Located? Who Attends Them? Baltimore: Johns Hopkins University.)*[1]

Roughly 65% Texas students are graduating from high school according to Editorial Projects in Education and Research Center. The charts below demonstrate this statistic along with graduation rates for all seven of the Independent School Districts within the HCC service area. These differences in graduation rates show differences in the educational needs of students in these areas. Areas with higher numbers of students not graduating from high school will need more remedial courses and GED certification programs. Alternative graduation programs should also be emphasized. Students in these areas may also be geared towards early high school graduation programs.



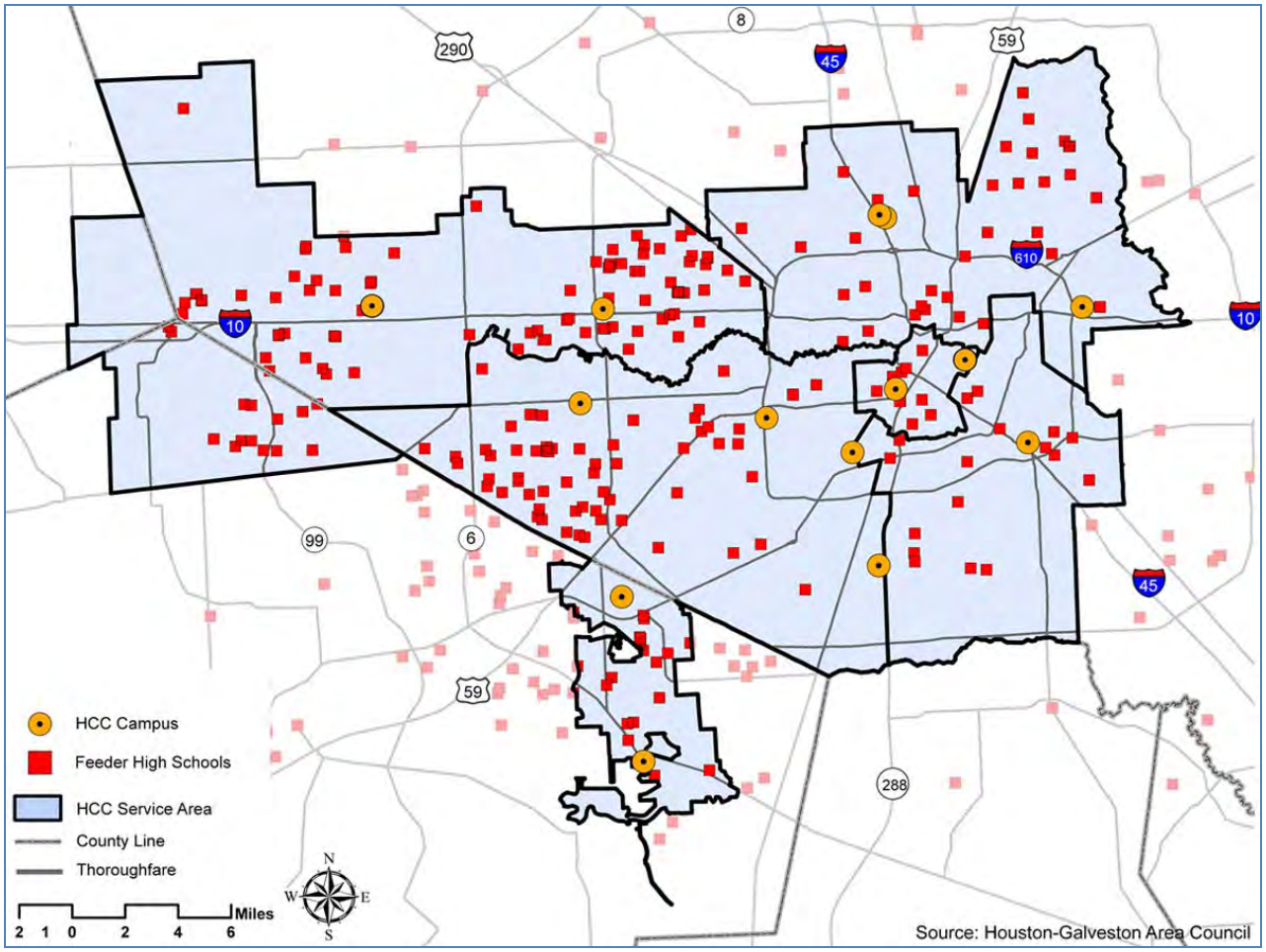
GRADUATION RATES (2006)			
ISD	ISD AVG	STATE AVG	NATIONAL AVG
Houston	42.8%	65%	68.6%
Stafford	64.1%		
Fort Bend	78.6%		
Katy	87.6%		
Spring Branch	62.3%		
Alief	44.6%		
North Forest	40.9%		

[1] http://www.earlycolleges.org/overview.html

Chart 3, Table 16: Graduation Rates - Sources: ISD information comes from each ISD noted. State Average comes from the Alliance for Excellent Education. National Average comes from the National Center for Higher Education Management Systems.

Graduation rates are seen as a fundamental indicator of school success. Almost 90% of the fastest-growing and highest-paying jobs require some postsecondary education. Having a high school diploma and the skills to succeed in college and the workplace are essential. Low-performing schools that fall within the HCC service area should be noted as students from these schools may be excellent candidates for HCC workforce development outreach and early high school graduation programs.

Identifying the ISDs with lower graduation rates and having future campus locations around those school districts with the offering of relevant coursework that supports high school education will play a key role in long-term success of HCC system by strengthening the enrollment pipeline.



Map 9: Location of High Schools that feed HCC enrollment

The map above outlines the local high schools that are feeder schools into the HCC system from the ISDs referenced. Additional ISDs outside the immediate HCC service area may also be viable feeder schools.

Early College High School Programs

A study conducted by John Hopkins University and the Associated Press named 42 high schools in the Houston area that have an attrition rate of 40% or higher. Amongst these 42 schools, 26 were located in the HCC service area. In such cases, HCC's involvement in the early college high school program can make a difference in state high school attrition rates by encouraging students to stay in school and providing them with viable education options. The table below outlines specific schools within the HCC service area that are feeding the current Dual Credit Program.

FEEDER SCHOOLS FOR HCC'S DUAL CREDIT PROGRAM	
Northwest College	Katy and Spring Branch ISD school and HISD Westside HS

Table 17: Feeder Schools for Northwest College's Dual Credit Program

The early college high school program provides students the opportunity to receive a high school diploma and an associate's degree or up to two years of credit toward a bachelor's degree in the span of five years. Students take a mixture of high school and college classes in order to obtain their high school diploma and associate's degree. Each early college high school is a public school and is open to any resident in the school district. HCC operates six early high school programs throughout the Houston area. Early college high school classes also allow students to transfer credits to public universities in Texas and some private institutions. Available academic courses include English, History, Government, Biology and Economics.

Schools are designed so that low-income, first-generation college students, students learning English, minority students, and other under-represented students can benefit from programs where they can earn high school diplomas and associate degrees.

Early college high school classes are already being offered at several HCC campuses. For example, Spring Branch ISD students can attend classes at the HCC Spring Branch campus or at their high school.

1.3.2 Competition

HCC is not the only community college in the area that is looking at graduation rates, the need for GED classes and teaming with local ISDs to strengthen their enrollment pipeline with early college high school programs. The table below identifies some of these local colleges with basic comparisons on enrollment, tuition and student success as measured by the volume of degrees and certificates awarded in 2008-2009.

LOCAL COMMUNITY COLLEGE OFFERING ACADEMIC AND TECHNICAL CERTIFICATES AND DEGREES			
Community College	2009 Fall Enrollment	Tuition, Books and Fees	Degrees and Certificates awarded 2008-2009
Alvin Community College	5,189	$9,337	939
Blinn College	16,855	$12,521	1,253
Brazosport College	3,866	$11,300	208
College of the Mainland	3,916	$10,136	484
Galveston College	2,167	$11,794	373
Houston Community College	42,104	$11,522	3,577
Lee College	6,542	$15,570	1,420
Lone Star College System	55,491	$11,942	3,530
San Jacinto College District	30,449	$14,099	4,254
Wharton County Junior College	6,622	$12,015	675

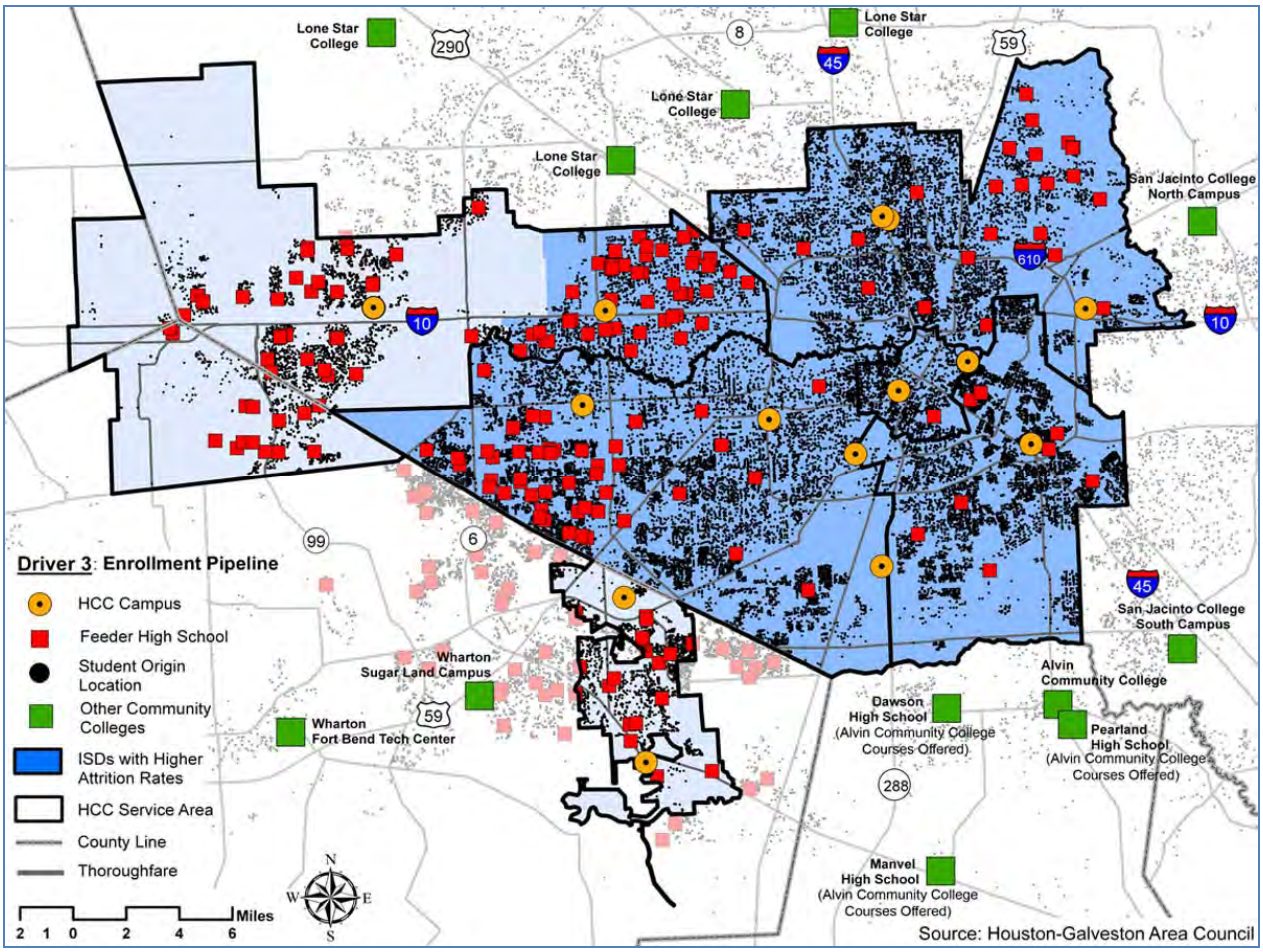
Table 18: College for all Texans, National Center for Education Statistics, Texas Association of Community Colleges

The individual colleges' programming will no doubt impact the students' selection of college. This topic will be addressed in the strategic plan. The prevue of the FMP is to factor in the impact of the location of the facilities themselves and what role that may play in attracting student enrollment. In addition to questions of programming, there is also the issue of benchmarking. An additional benchmarking study is recommended to identify colleges that are leading the nation in enrollment, engaging top level educators, attracting investment and promoting student success. These are the institutions of higher education that are also leaders in developing distance education programs and developing a network of well maintained campuses – in short they provide their students with accessibility options.

In Driver 2, Accessibility, we have already determined that for many students the cost of commuting is an important factor in deciding whether or not to attend higher education classes. With increased travel times expected, accessibility issues will be an even greater concern as traffic changes occur. Students will increasingly need to access classes near where they work and live especially during peak commute hours.

The dot density map on the following page shows the outline of the HCC service area along with current campus locations, that of the local competition and the concentration of HCC students represented by their home address. This map highlights the proximity of students to the HCC campuses and the number of students that come from outside the HCC service area. Approximately 80% of HCC's student population lives in-district while 20% of students live outside the HCC service area. It is important to note, there are additional locations for the local community colleges which fall outside of the map boundaries and these colleges are continuously seeking ways to grow – just like HCC. It is also interesting to note that many of

the competitor locations are in high growth areas like Tomball, Sugar Land, and Pearland. Several locations are also in the



Map 10: Competition Locations

1.3.3 Industry Demands

The need and direction of local workforce development will have a significant effect on Houston Community College as the skill set of the existing labor pool must change to accommodate demand. The City of Houston compiles jobs data using US Census Bureau statistics (from the 2000 US Census and the 2009 forecast) to compile local industry statistics. These statistics are broken down in the chart below to show the Top Industries for each of the HCC campus areas. Major trends include an increase in jobs for the health care industry and construction (which has recently fallen off due to economic conditions) , both of which saw significant increases in jobs in every HCC service area from 2000 to 2009. Industry losses were seen in Manufacturing, Wholesale Trade, Information, and Utilities in every HCC District.

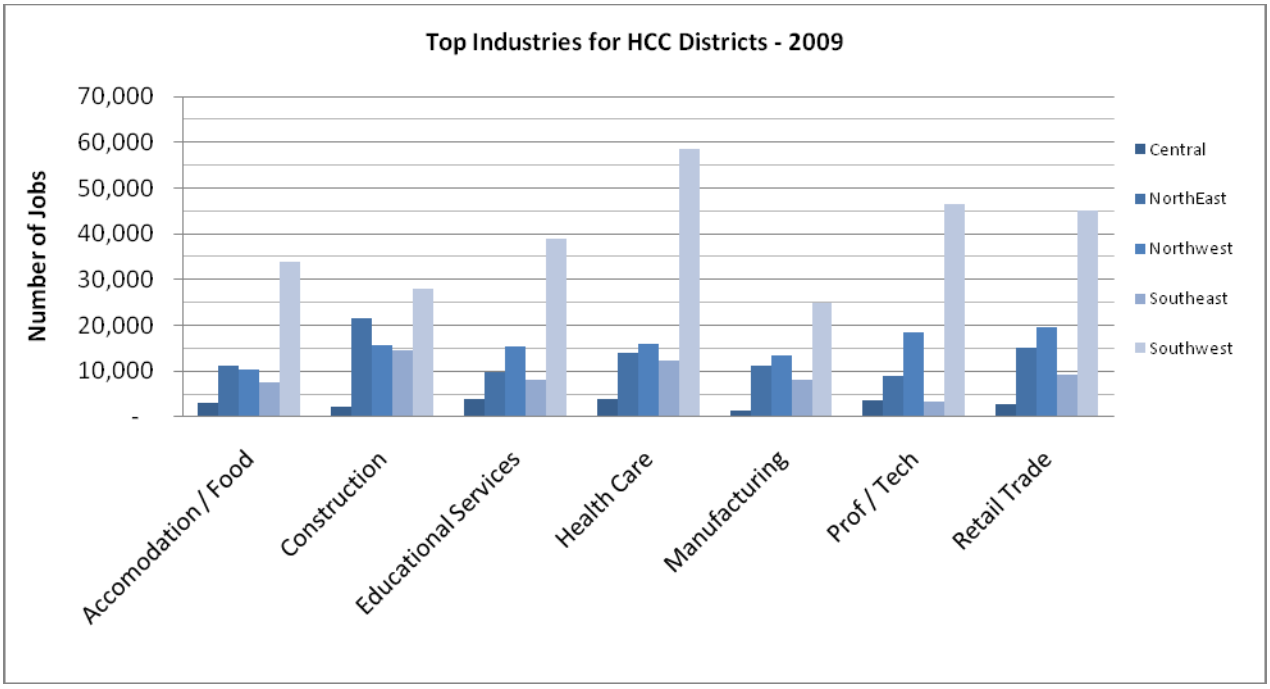


Chart 4: Top Industries for HCC Districts

Community College class offerings must change to accommodate the demands of the existing labor pool in order to fully address the shifting skill sets required in the local labor force. It is important to track the growth of specific industries in the Houston region and their attendant labor needs. Collecting current data and leveraging industry partnerships will be important for input and can help forecast future workforce needs.

Community colleges generate $276 million per year in intangible benefits associated with increased rates of higher education, including improved health, reduced unemployment, crime, and welfare spending. (HCC Foundation)[2] Career technical programs are "essential to the state's effort to reduce dropout rates and to meet employer demand for current and future jobs, many of which do not require a bachelor's degree."[3] For a strong and productive workforce, strong educational skills will be imperative. Texas must focus on efforts to improve graduation rates and to provide workforce specific training to its population.[4]

Despite a nation-wide economic downturn, Texas' economy has remained relatively strong and business leaders continue to see Texas as being a strong location for business development. CEOs have ranked

[2] http://www.hccsfoundation.org/Page.aspx?pid=261
[3] Advancing Texas, Strategic Plan for the Texas Workforce System, [FY 2010-FY2015], Texas Workforce Investment Council, Austin, Texas, 2009
[4] Texas Workforce Investment Council, *Texas Index* 2007.

Texas as the top state for job growth for the fourth year in a row.[5] Last year, Houston ranked in the top five for Best Cities for Jobs ranking conducted by Forbes magazine.[6] Understanding the local job market, following industry demands and offering relevant courses at future locations will help drive enrollment.

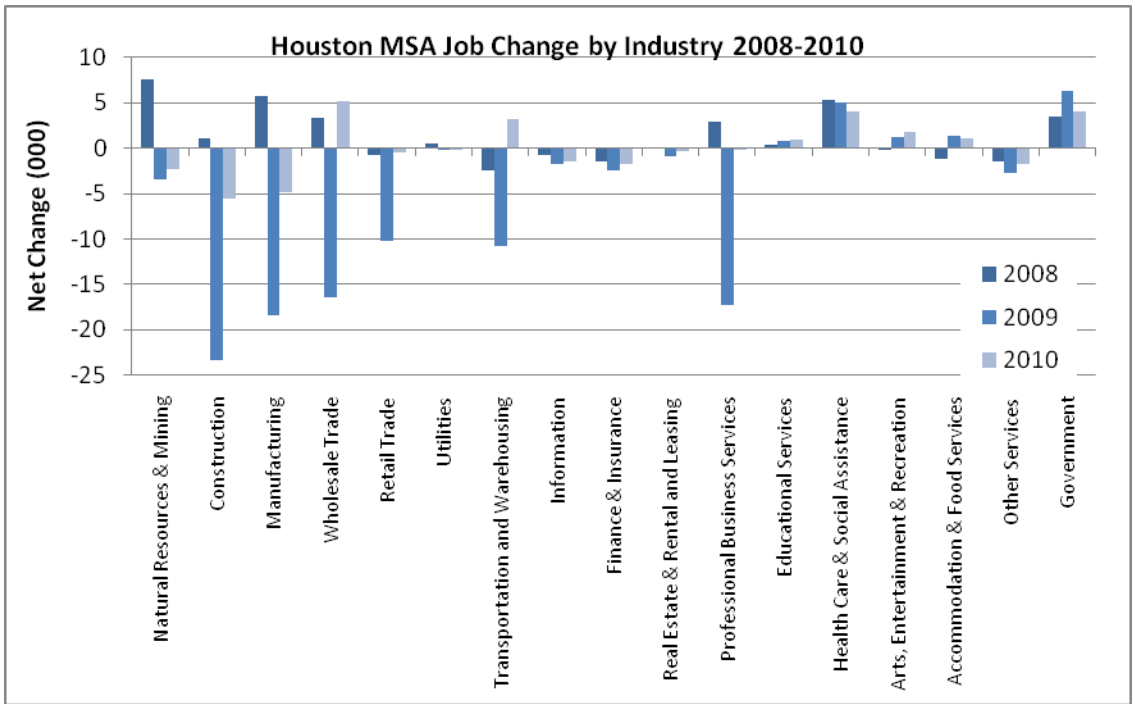


Chart 5: Houston MSA Job Change by Industry 2008-2010 – Greater Houston Partnership (GHP)

The chart above shows the most recent change in employment statistics while the chart below offers a forecast of employment through 2016. Tracking the current and future industry demands will help to: Identify partnership opportunities, required programming and assist in facility planning.

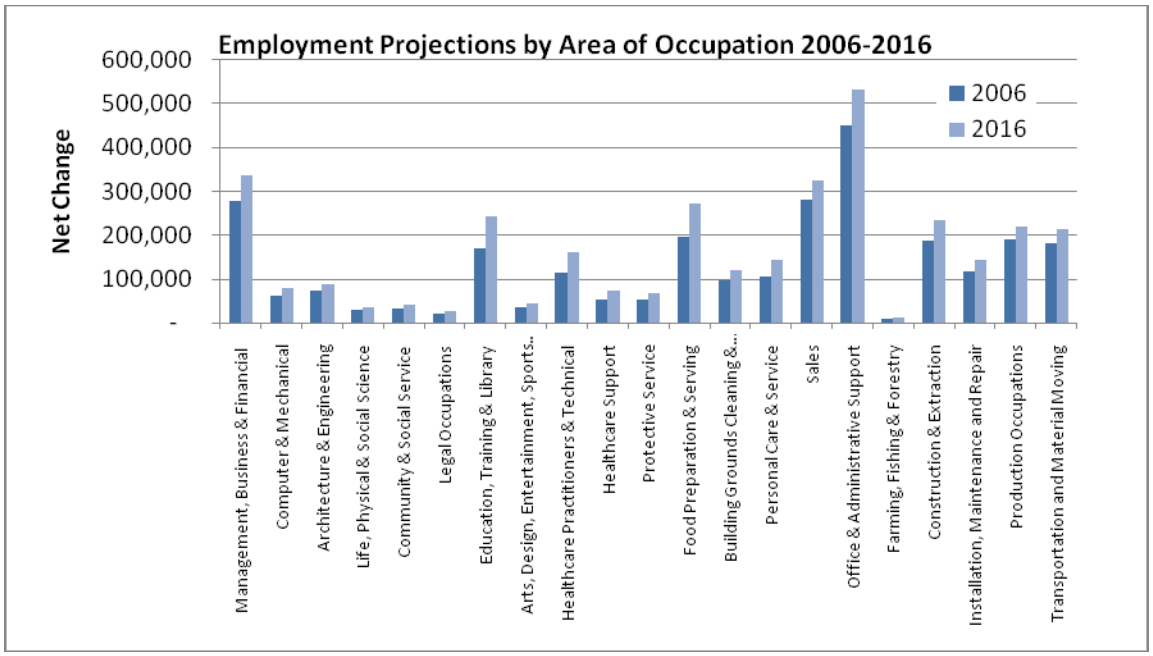
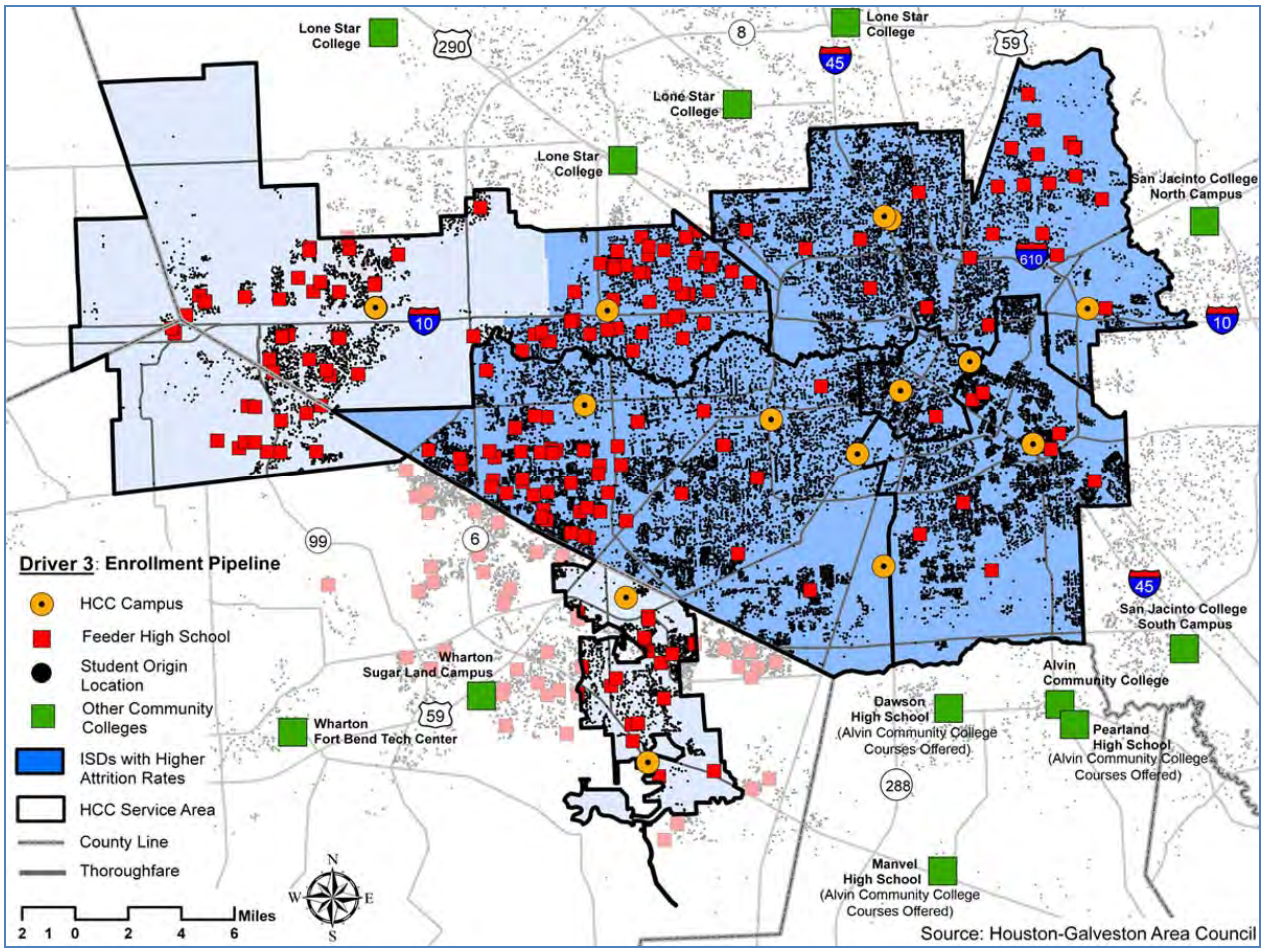


Chart 6: Employment Projections by Area of Occupation 2006-2016 - GHP

[5] Chief Executive Magazine, January/February 2009.
[6] Forbes.com, April 14, 2009.

1.3.4 Summary of Enrollment Pipeline – Driver 3

HCC has been successful in creating a pipeline from area high schools and has been innovative in creating student retention programs to ensure student success rates. The map below outlines the local high schools that are feeder schools into the HCC system from the ISDs referenced. Additional ISDs outside the immediate HCC service area may also be viable feeder schools.



Map 11: Summary of Driver 3 impact on future HCC site selection

1.4 Summary of Drivers

The location of future facilities is critical to the successful delivery of HCC services. The FMP plays an integral role in the overall planning process by providing a guideline for how to evaluate and best identify prime facilities locations. The map below is a compilation of highest growth areas for each of the three main drivers identified in this study and outlined in the figure at right.

Locating facilities in areas with the highest growth increases the potential utilization of the facility which also implies increased enrollment. As the map below highlights, growth in the greater Houston area through 2035 will be significant and provides HCC with many choices for expansion. Supplemental studies will help to determine facility composition and timing of construction. This information will feed the bond package preparation process and provide useful support to the final development of VISION 2035.

The map was compiled by developing a cumulative index of all three driver summary maps. Because expansion of current facilities will be largely determined by future studies already outlined in this report, a 2-mile buffer was added around each existing facility.

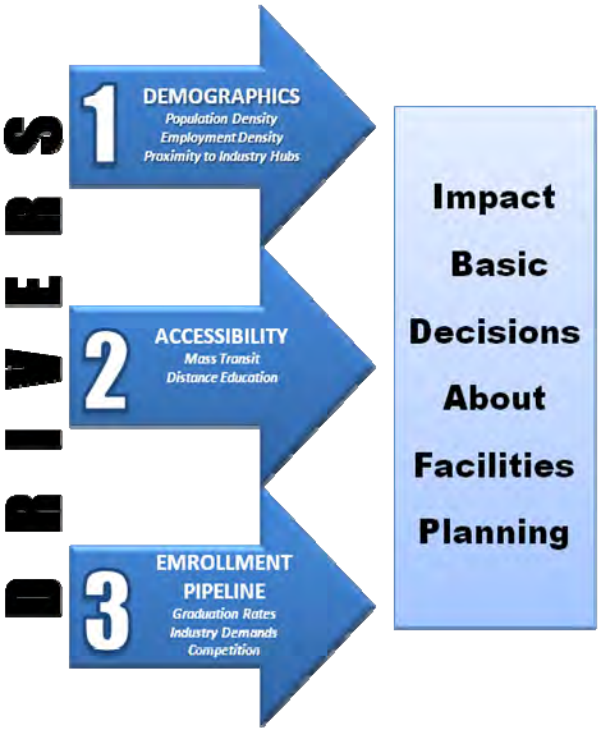
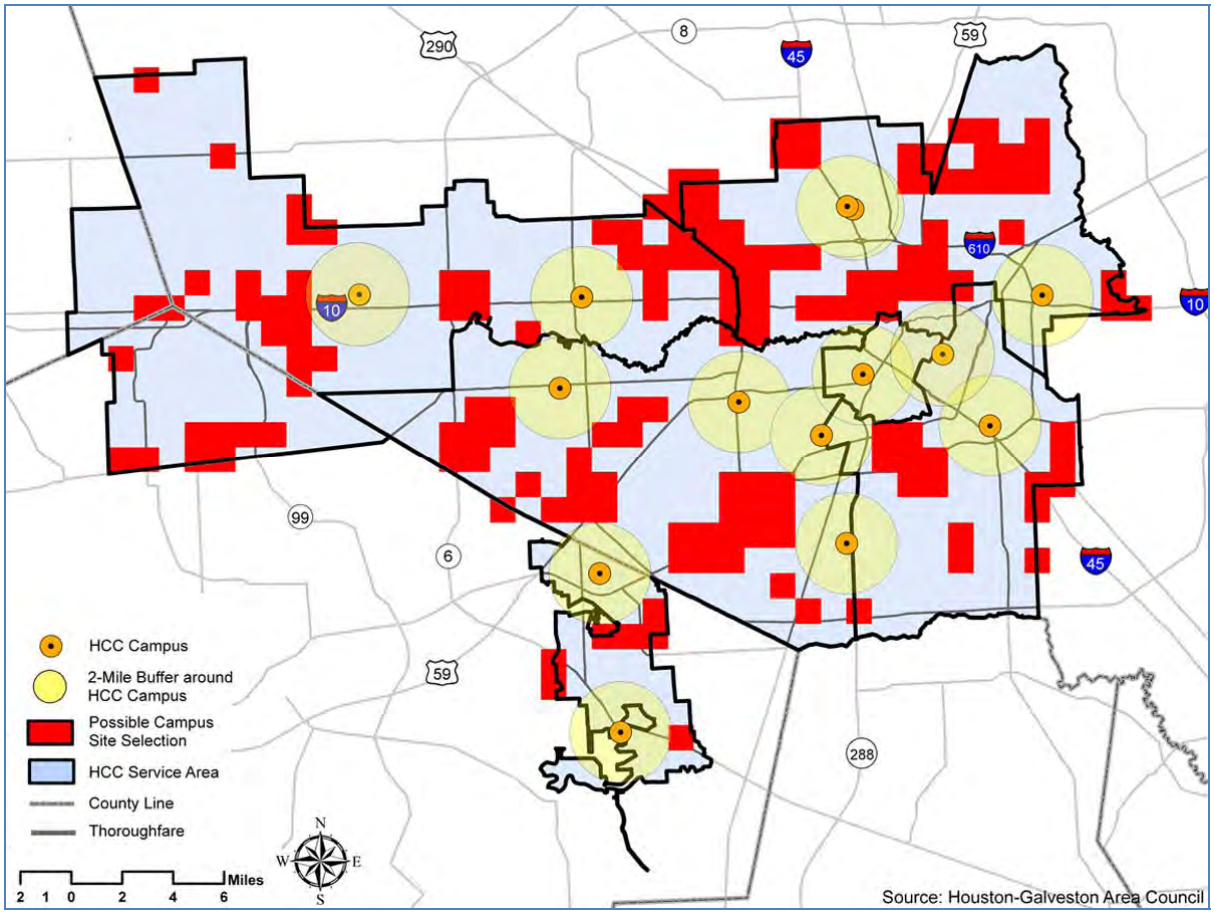


Figure ?: Facility Location Drivers



Map 12: Summary of all three Drivers impact on future Northwest College site selection

The resulting composite map identifies the following areas that, under the given criteria, suggest the optimum growth potential for future HCC locations:

- **Northwest College** - HWY 6 and I-10 junction (Barker Cypress and energy corridor) City of Katy, West of SH99 on FM1093 connecting Cinco Ranch and Fulshear, Park Row (North of I10 on SH99), area south of Harbican Airpark and north of Clay Road.

HCC FACILILITIES MASTER PLAN

SOUTHEAST COLLEGE

INDIVIDUAL SUMMARY BY DEMOGRAPHICS

DRAFT COPY

1 DRIVERS

For HCC to effectively expand to meet future demand, it must develop an understanding of the changing landscape in which it finds itself. The location of future facilities is critical to the successful delivery of services to the community. The FMP, used in combination with HCC's strategic plan, which will be published later in the year, plays an integral part in the overall planning process by providing a guideline for how to evaluate and best identify prime facilities locations.

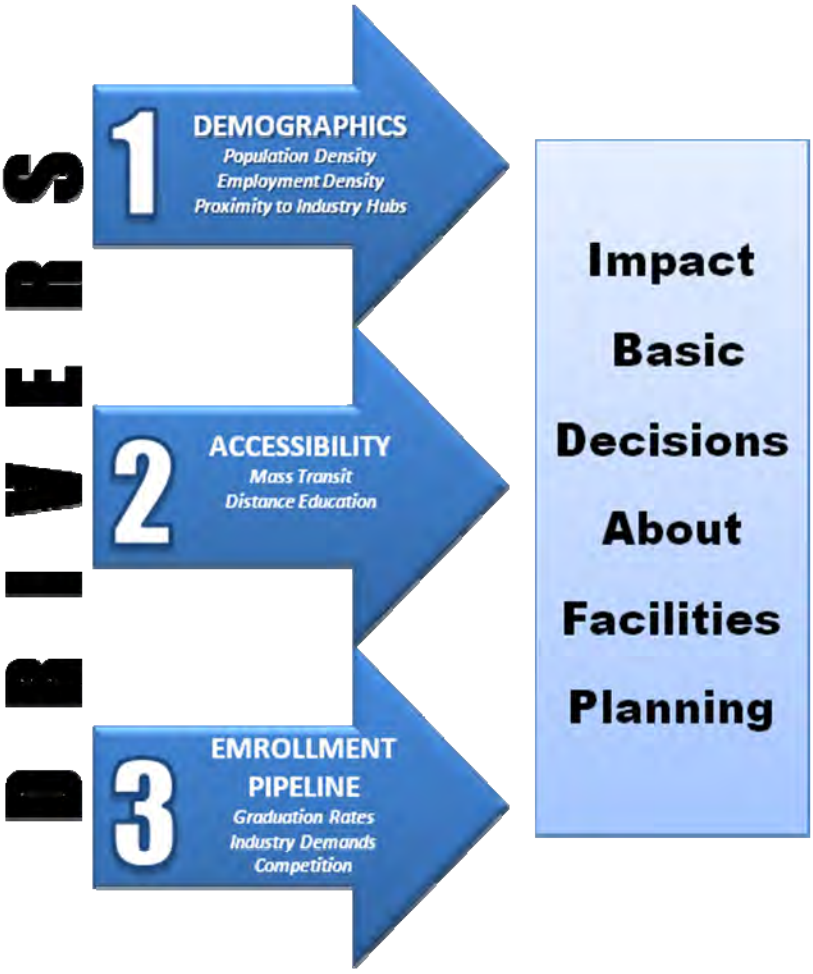


Figure 8: Facility Location Drivers

When researching factors that influence facility development at HCC, many factors emerged including:

- Population
- Economy
- Transportation Access
- Economic Growth
- Facilitate Organic Growth
- Community Redevelopment
- Feeder Patterns
- Funding
- Strategic Planning
- Programming
- Educational Delivery System
- Enrollment
- Return on Investment
- Proximity to Other HCC Campuses
- Take what you can get
- Budget
- Competition
- Benchmarking

Ideally, the research behind the need for a new facility would include all of these factors along with consideration of the needs of the entire system to prioritize locations. To narrow the scope of the discussion, those elements that have the most significant impact on facility development have been short listed into the chart to the left.

By examining and truly understanding changes in the three short listed drivers**,** HCC will be able to carefully plan and maintain the managed growth of the College. Once identified, these drivers were then reviewed for accuracy by planning and development professionals at the City of Houston and the Houston-Galveston Area Council, as well as, noted researchers in the areas of population and urban growth. These drivers are represented by tangible data that is collected periodically by reliable sources and will be periodically updated and available for reanalysis and incorporation into the model.

Using this report, decision makers can assess the best location for future facilities in keeping with the College's goals and VISION. The FMP is one tool in the overall planning strategy and must be considered in connection with HCC's overall VISION, strategic, academic, and financial plans. Where facilities are located, their composition, and how they function must reflect the goals of the institution and further those objectives.

1.1 Demographic

Demographics in the HCC service area and changes to the service population will drive questions of facility location and type. Associated with demographics are the issues of programming (which is covered in the strategic plan), current utilization and capacity (studies are recommended in both areas). Students frequently attend a specific campus based on proximity to their homes or workplace. Therefore, the two greatest factors that make up questions of demography, as they relate to the future needs of HCC, will be residential density and employment density - determined by how many people are living or working in an area.

1.1.1 Population Density

The key to understanding the demographic outcomes for the region are most important in terms of population densities. Concentrations measure the number of people in a defined area. While forecasts predict increases in populations across the board, it is where this increase is sharpest that is most important because it will have the greatest impact on facilities planning.

The Brookings Institute has labeled Houston as one of the "Next Frontiers" based on its high growth, high diversity and high education compared to the 100 largest metro areas in the US – according to the Brookings Metropolitan Policy Program. The HCC service area contains almost all of Harris County and parts of Fort Bend and Waller Counties. The service area is home to over 2 million residents. In context with the HCC service area, the population density in the year 2010 shows the highest rate of density:

- inside the 610 loop,
- southwest part of Houston inside Beltway 8 between I-10 and US-90A,
- satellite cities such as Missouri City, Sugar Land, Katy and
- around I-45 corridor between Beltway 8 and 610 area.

The tables below breakdown the 2009 population by gender for HCC and of the Southeast College.

POPULATION INFORMATION, 2009 EST.	
Total Population	2,140,484
Adult Population	1,566,791
Male	50.3%
Female	49.7%

Table 11: Houston Area Population Information – H-GAC 2035 Regional Forecast

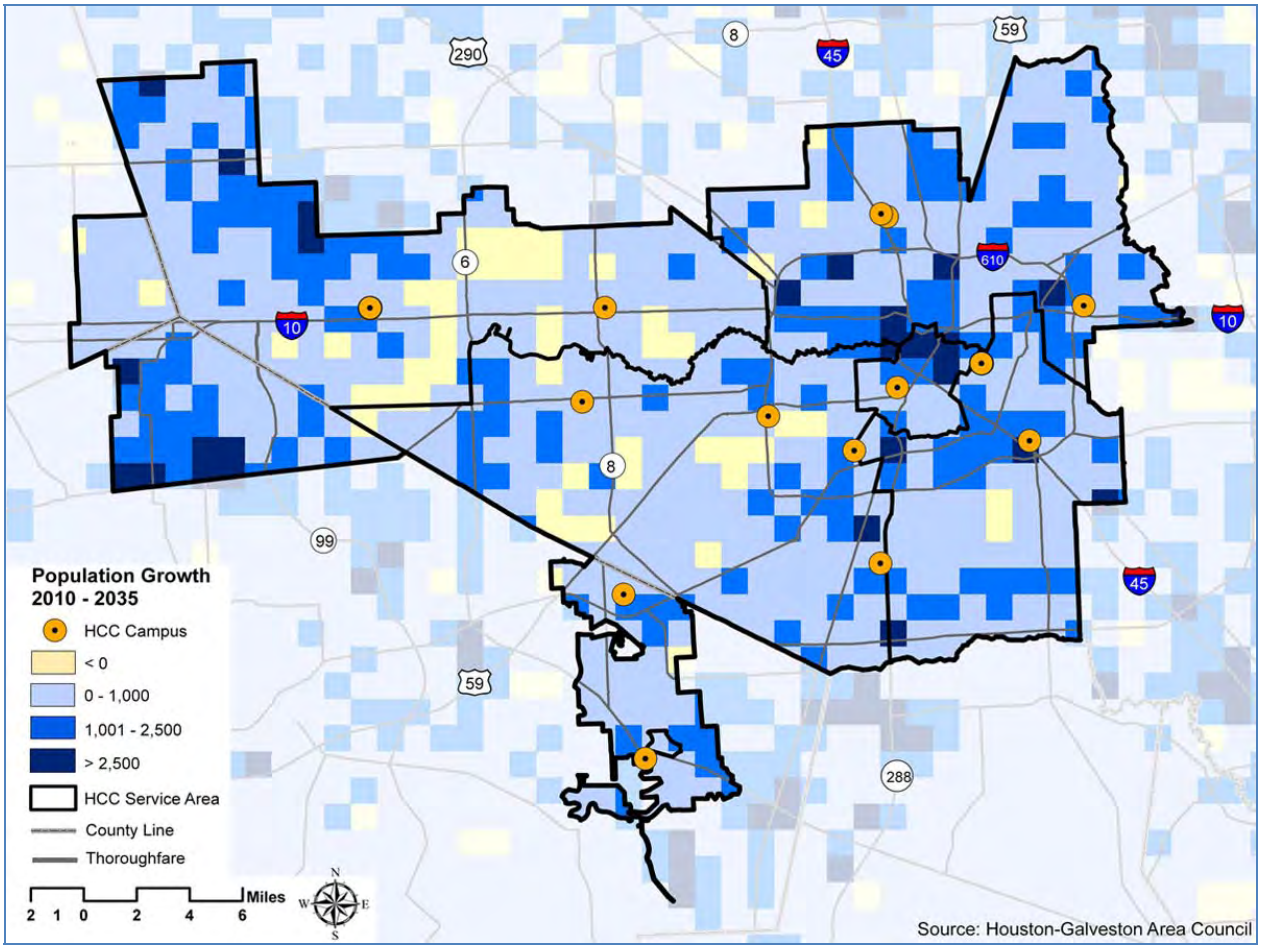
POPULATION IN HCC COLLEGES			
HCC College	**Current Enrollment**	**2010**	**2035**
Southeast	45,783	337,346	398,514

Table 12: HCC Southeast College Enrollment – H-GAC 2035 Regional

Population Growth (change) between the years 2010 – 2035:

Simply looking at the population density will not help us understand the areas experiencing the largest growth. We have to understand the growth pattern and identify areas that will undergo change. In the map below, the dark blue areas highlight the highest population growth between 2010 and 2035.

- In the South, the areas around SH288 corridor between Beltway 8 and SH6 (cities including Manvel, Fresno, Pearland) will experience high population growth.
- In the Southeast part of Houston, the areas around I-45 corridor particularly to the East of I-45 (cities including Pearland, Friendswood, Pasadena, Seabrook and the League City) will experience high population growth.



Map 2: Population Growth between years 2010 – 2035 (Data source: H-GAC)

Placement close to population growth centers creates an opportunity to capture:

- Students requiring GEDs
- Early College High School students
- The unemployed seeking training/retraining
- Students that may require public transport to access education

1.1.2 Employment Density

Houston and its surrounding ETJ are home to more than 1.7 million jobs. Houston's employment growth has exceeded the national employment growth for several years. By 2035, employment will see a 40% increase to 613,000 jobs and the ETJ will see an increase of 160,000 jobs or a projected 50% increase. The following charts show job growth expectations for the HCC Service Area.

HOUSTON AREA EMPLOYMENT 2007 AND 2035		
	2007	**2035**
City	1,531,000	2,115,000
ETJ	160,000	320,000

Table 13: Employment Growth – H-GAC, 2035 Regional Growth Forecast

JOBS BY HCC COLLEGES: 2010 AND 2035		
HCC COLLEGES	**2010**	**2035**
Southeast	184,000	297,000

Table 14: Job Growth in Southeast College - H-GAC

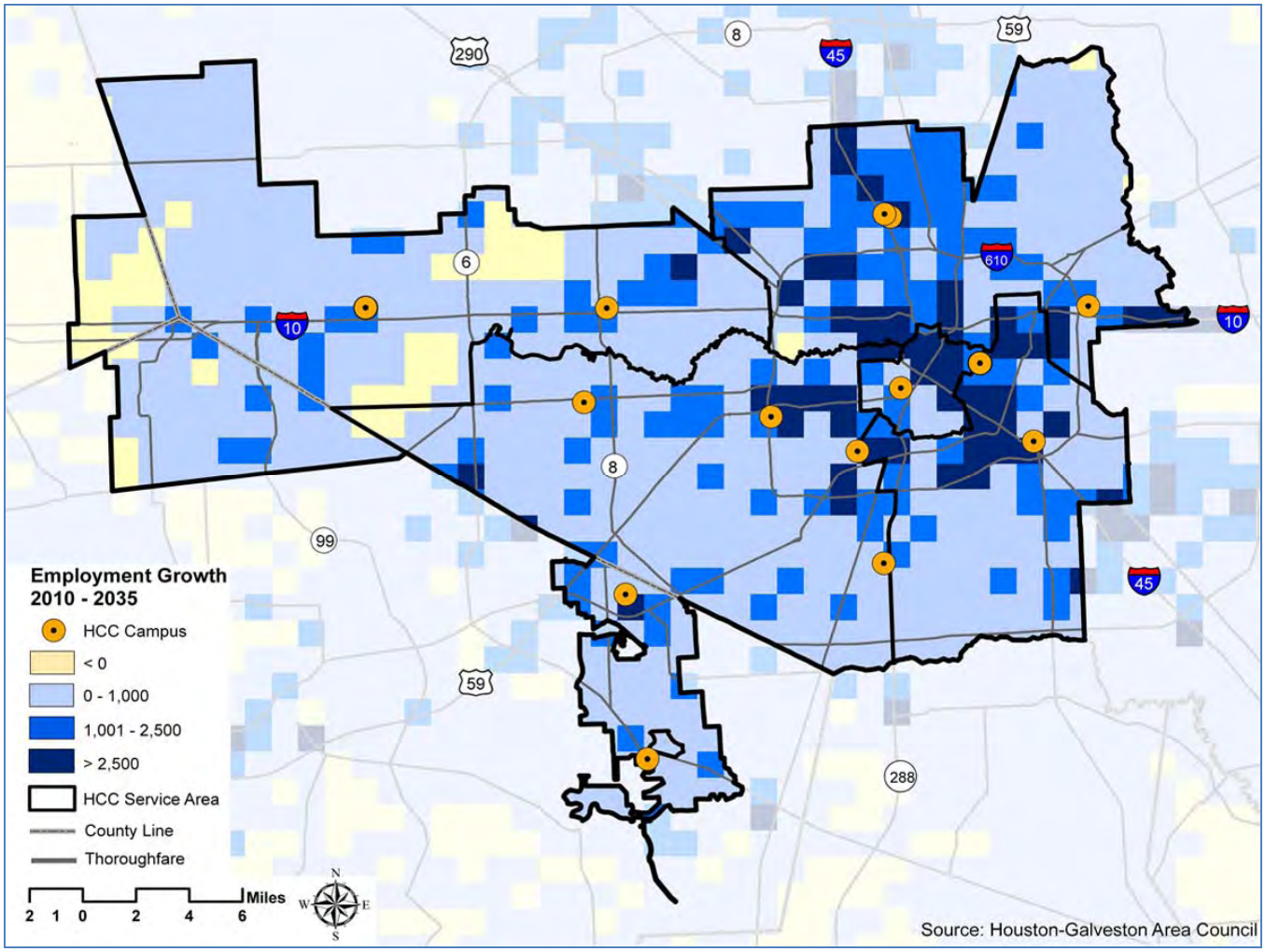
Employment density in the year 2010 shows high employment concentration in Downtown and around the Hobby Airport. By 2035, the growth is even more significant around the I-45 southeast corridor, around Hobby Airport and the City of Pasadena. Outside of HCC service areas, the strongest growth is forecasted along SH225 connecting to the Port through City of Pasadena, south of University of Houston, Hobby Airport vicinity and League City.

Because HCC students are more likely to attend school near where they work or live, it is important to note where the major employment centers of Houston are located. As traffic and travel times become increasingly important to Houston motorists this connection will only become more pronounced.

Employment Growth (change) between the years 2010 – 2035:

The map below outlines the areas experiencing the highest employment growth levels between 2010 and 2035.

- In the South, the areas around SH288 corridor outside of Beltway 8 will experience employment growth.
- In the Southeast part of Houston, the areas around I-45 corridor from south of Hobby Airport to north of Ellington Field will experience high employment growth.



Map 3: Employment Growth between years 2010 – 2035 (Data source: H-GAC)

Placement close to employment growth centers creates an opportunity to capture:

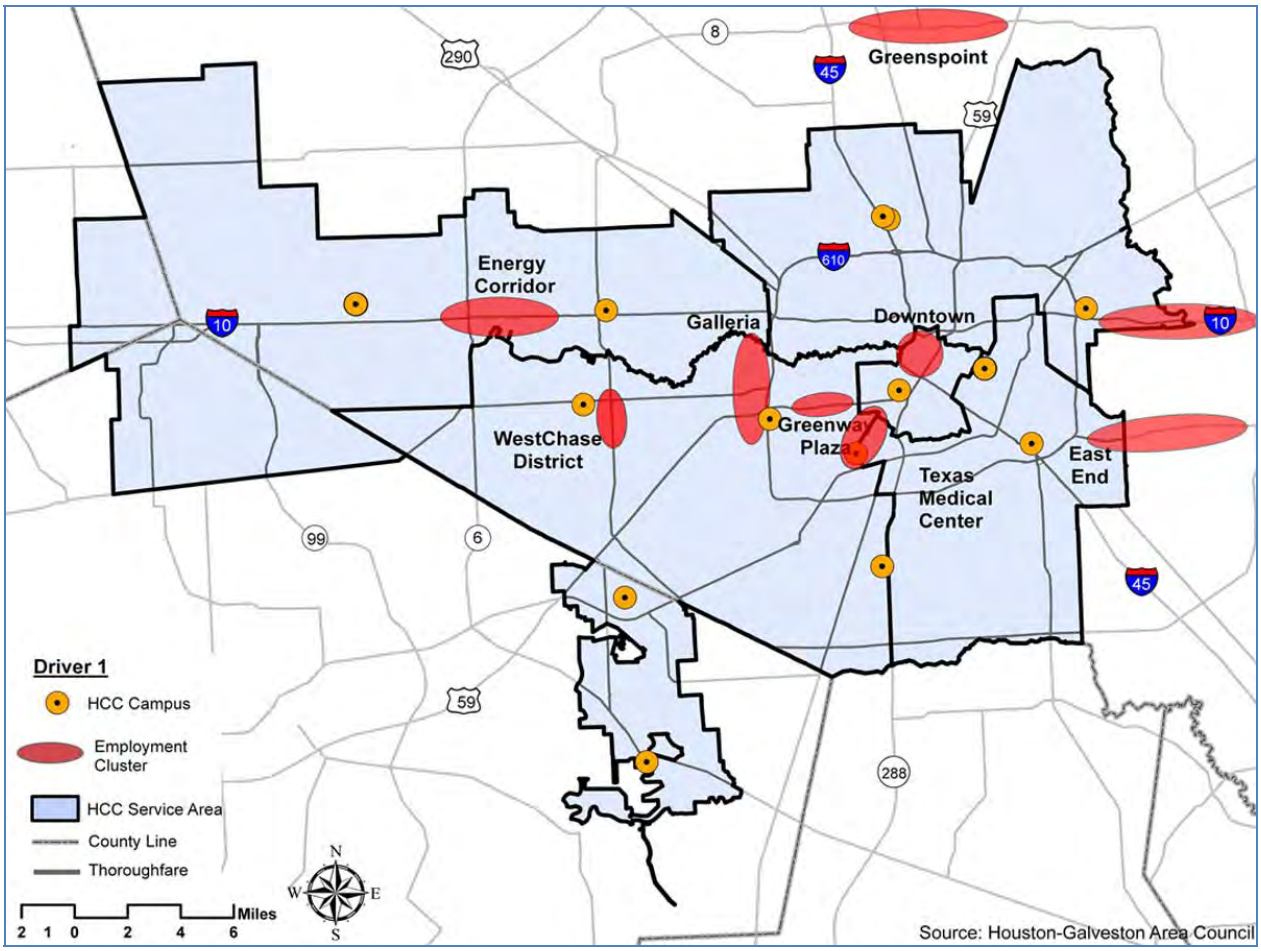
- individuals seeking convenient training to upgrade their skill set,
- individuals seeking leisure learning opportunities,
- creates a useful venue for corporate retreats and
- provides partnership opportunities with industry leaders to service their training requirements.

1.1.3 Proximity to Industry Hubs

Houston is the center for many key industries including health care, aerospace, finance, petrochemical and oil refining. These industries are generally centralized in employment and industry clusters around the City and also serve as feeders for many potential students who are looking to advance their professional development through part-time enrollment and technical training courses. These employment clusters include Downtown, the Texas Medical Center, the Galleria, Greenspoint,

Westchase, Clear Lake, Greenway Plaza, and the large petro-chemical and refinery centers located mainly on the east side of the City. As Houston continues to evolve, new hubs will develop and others will decline. Tracking these changes is important in charting the growth of HCC.

The HCC campus system is spread out over a considerable geographic area. The Central Campus is well placed in the downtown area and is easily accessible to the Mid-Town and inner City population centers and Downtown and Midtown business districts. Coleman College is located in the Texas Medical Center and offers specialized programs for the healthcare industry. The Spring Branch and Westgate campuses are situated near the employment hubs in the Energy Corridor, while the industrial and Port areas of the East End are near both the Northeast and Eastside Campuses.



Map 4: Employment Clusters

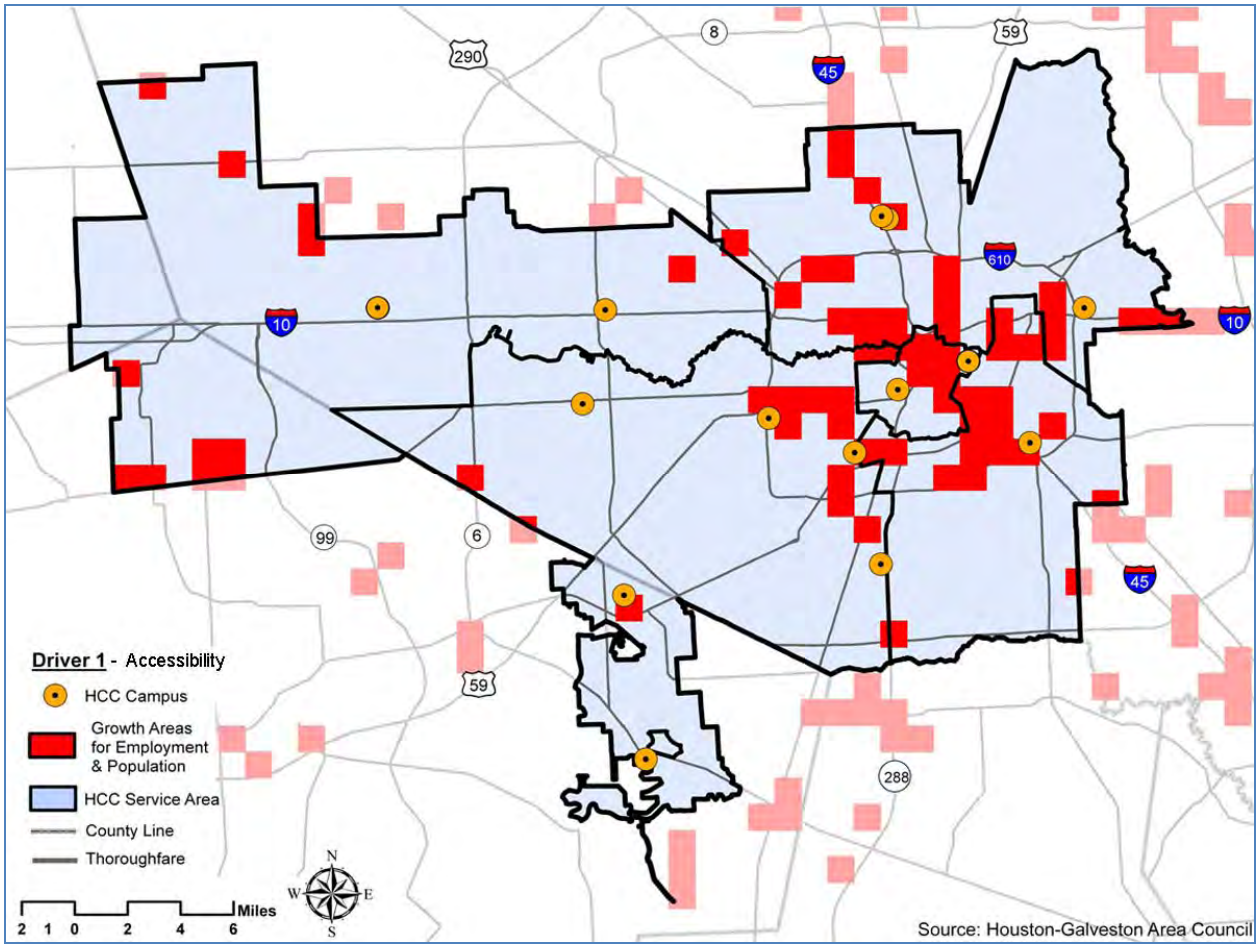
East End

The eastern side of Houston is home to a variety of heavy industrial, petrochemical, maritime, and manufacturing industries. It includes the Port of Houston, and Hobby Airport, as well as the businesses attendant upon them, such as shipping, transportation, logistics, warehousing, and source distribution. Anheuser-Busch, Maximus Coffee, Oak Farms Dairy, Farmer Brothers' Coffee, Vam Drilling and a single Valero refinery, account for over 2,600 direct jobs in the area.

1.1.4 Summary of Demographics – Driver 1

The two greatest factors related to demographics will be residential density and employment density - determined by how many people are living or working in an area. Students attend a specific campus largely based on proximity to their homes or workplace, thus making it important to track the changes in these demographics to uncover the most likely sources of future enrollment.

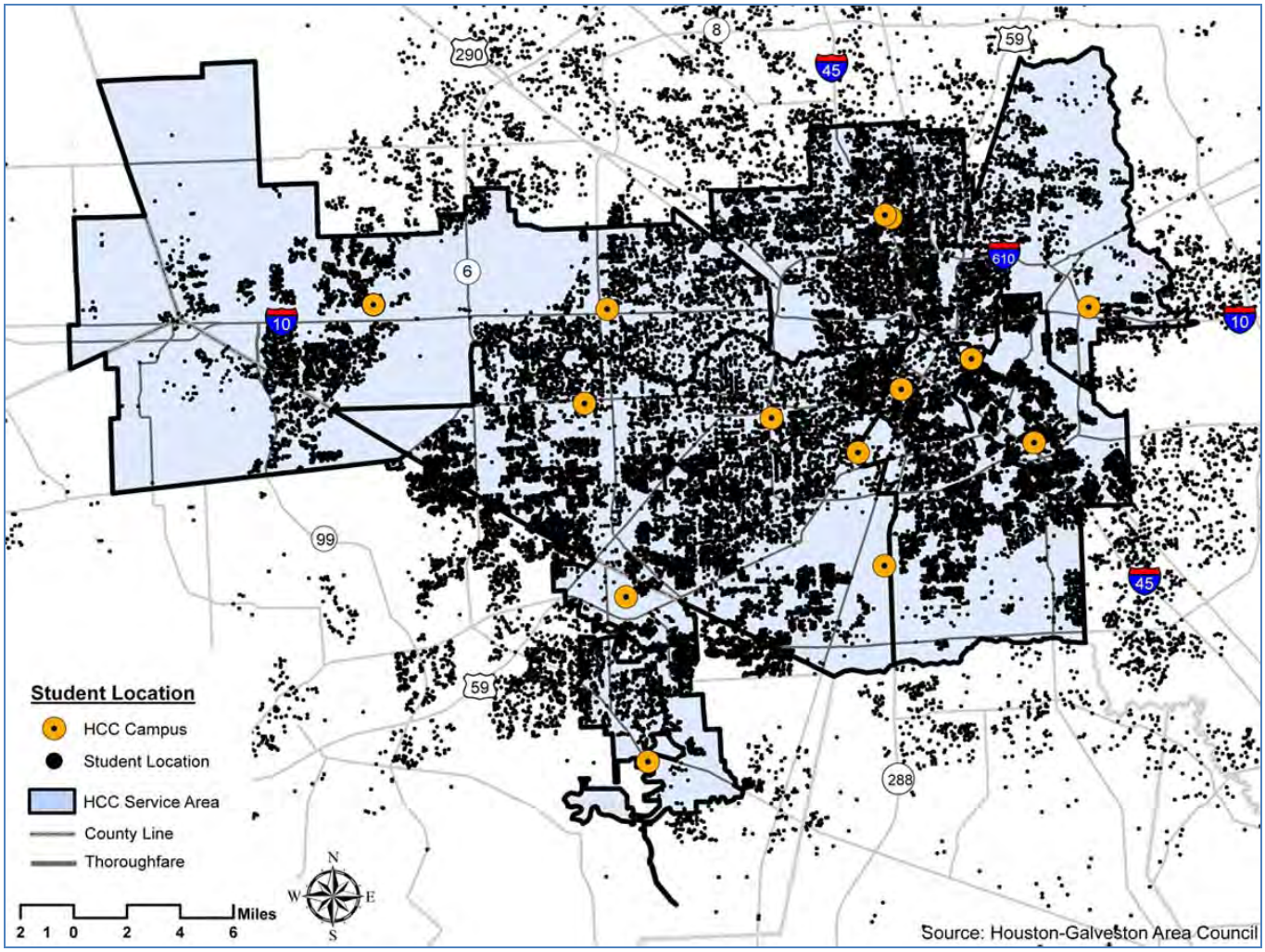
We have defined Driver 1 (Demographics) as combining the growth in population with employment density and refining them to the most significant areas of impact. It yields a concentrated view of critical growth areas. These areas are highlighted in the map below. These will be the focal points for HCC when considering placement of new facilities and possible expansion of existing facilities in order to leverage the projected growth.



Map 5: Summary of Driver 1 impact on future HCC site selection

1.2 Accessibility

We have defined Driver 2 (Accessibility) as a combination of transportation connectivity to future HCC campuses and trending growth in distance education as pertains to programming and campus planning. The dot density map below shows the outline of the HCC service area along with current campus locations and the concentration of HCC students represented by their home address. This map highlights the proximity of students to the HCC campuses and the number of students that come from outside the HCC service area. As the Houston area continues to expand, the commuter rail and light rail network is increased and HCC attracts more out of district students, it is vital to understand the role of transportation and the importance of providing students with necessary accessibility to transit hubs and employment centers.



Map 6: Student Location year 2009 - HCC

Approximately 80% of HCC's student population lives in-district. The dot density map above shows that many also live in close proximity to an HCC campus. However, 20% of students live outside the HCC service area which suggests that locating future campuses near transit, light rail and freeway corridors would provide more accessibility to the students to get connected with the HCC campuses and may result in increased enrollment.

Accessibility takes into account the ease with which people can take advantage of HCC services and the degree of convenience or difficulty students experience utilizing facilities. Reviewing accessibility is driven by an examination of area transportation infrastructure and the internal role of non-traditional and online course offerings. Generally speaking, the more choices students have for *how* to get to campus, the more positive an experience they will have.

1.2.1 Mass Transit

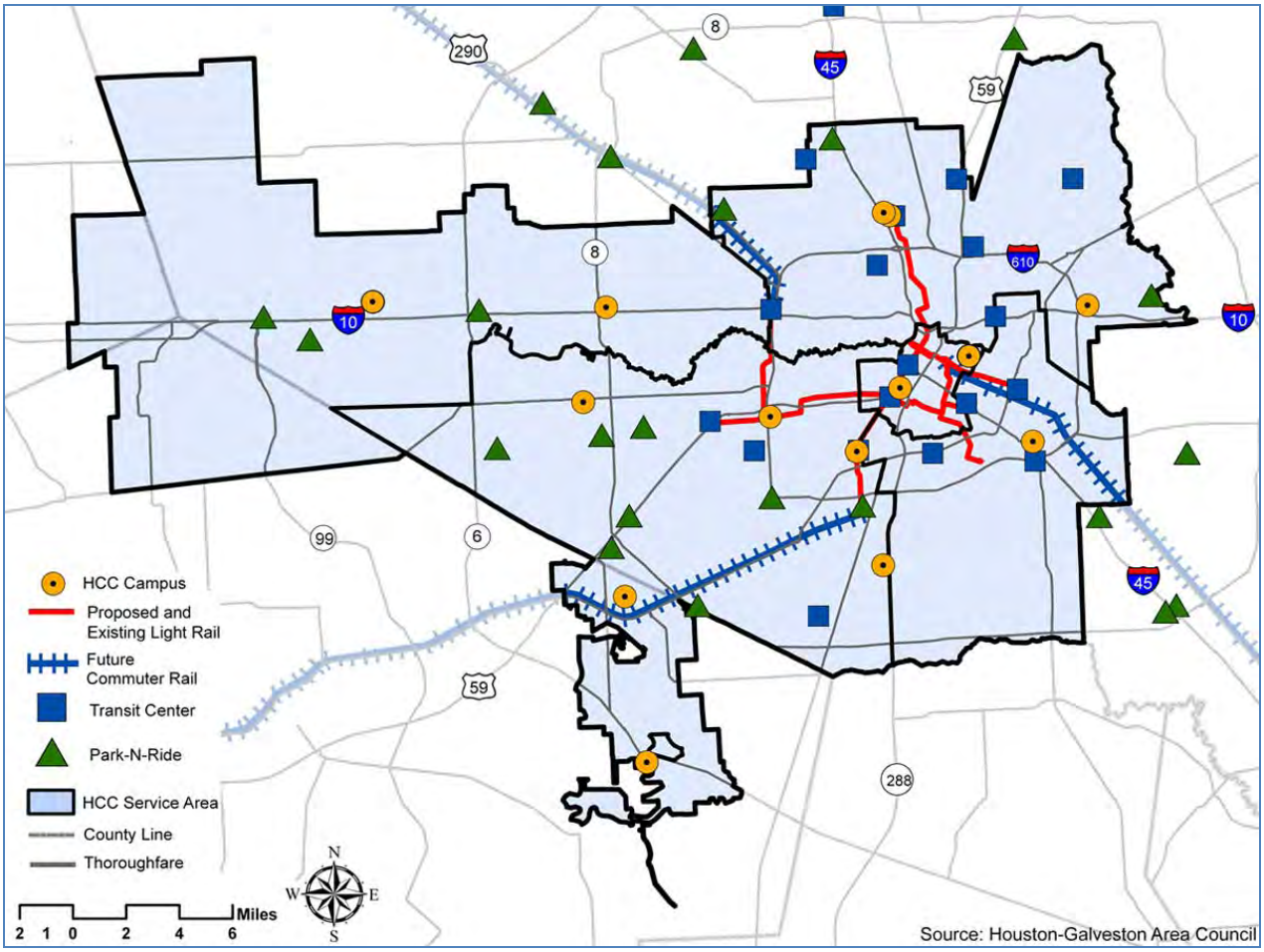
For many students the cost of commuting is an important factor in deciding on whether or not to attend higher education classes. The convenience of mass transit located near HCC facilities can increase access to higher education opportunities especially for economically disadvantaged students who may not have means for private transportation.

According to the H-GAC City Mobility Planning Travel Demand Model the number of work trips is expected to increase by 67% during the study period (through 2035) and travel time in the City and ETJ is expected to increase by two hours. Plans for the future transportation infrastructure expansion to address this projected growth include an additional 14% increase in overall street capacity over the next 25 years including 8,256 street lane miles or 13% in the City and 14,705 or 23% more street lane miles in the ETJ.

With increased travel times expected, accessibility issues will be an even greater concern as traffic changes occur. Students will increasingly need to access classes near where they work and live especially during peak commute hours. Many more students may choose to bypass traffic by utilizing mass transit options that can carry them from work or home to class in order to avoid transit delays.

Planned Transit Network Additions

In addition to the extensive METRO bus network across the greater Houston area, the freeway system and commuter rail and light rail are all critical for HCC students. The map below outlines the Houston transportation network with existing and planned transit facilities. The additional mass transit will provide greater mobility for all Houstonians and has the potential to increase enrollment.



Map 7: Light-Commuter Rail Corridors, Park-n-Ride, Transit Center Locations - H-GAC

Light Rail

The following lines are anticipated to be opened by 2012 as part of the METRO Solutions transit system expansion.

LINE NAME	DISTANCE	ROUTE
Southeast/Green Line	6.1 mi (9.8 km)	Smith Street in Downtown Houston to the Palm Center at MLK & Griggs Street
University/Orange Line	11.3 mi (18.2 km)	Hillcroft Transit Center to the Eastwood Transit Center
East End/Brown Line	3 mi (4.8 km)	East of Downtown Houston to the Magnolia Transit Center

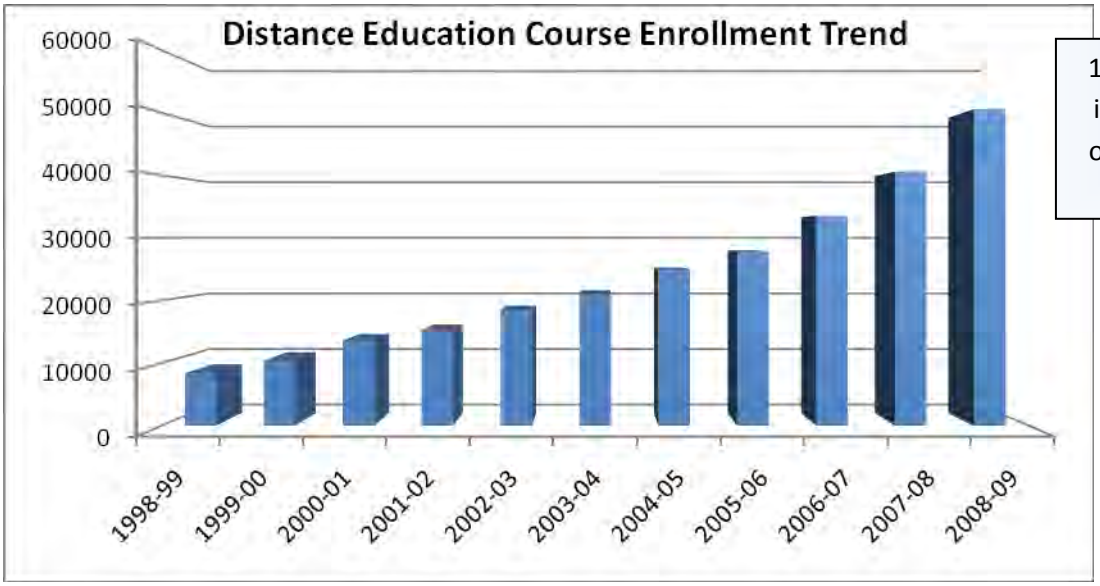
Table 15: Metropolitan Transit Authority of Harris County

The current plans for proposed METRO light rail lines reveal the possibility of serious inter-connectivity between certain campuses. There will be additional access for students using the new University Corridor located near the Wheeler station.

1.2.2 Distance Education

As online learning becomes more available and more attractive to students, increased enrollment in online classes will have an impact on the need and design of future facilities. It is important to note that although much of online learning is done without the use of a traditional classroom environment, preliminary research shows that students will continue to desire face-to-face interaction with faculty and other students, they will also use testing facilities and visit the campuses for administrative services. Matching the ease with which students can access courses and services online and in the physical space will present a number of challenges and opportunities in terms of campus planning.

A recent survey published by the Instructional Technology Council in March of 2010 on Distance Education showed that from Fall 2007 to Fall 2008 (the most recent full year of available data) campuses reported a 22% increase for distance education enrollment while on-campus enrollment for the same year only reported a 2% increase nationally in enrollment. Another study conducted by the Sloan Foundation reported a 17% growth in distance learning enrollments while on-campus enrollment only increased by 1.5% (Allen & Seaman, January 2010). The Sloan Foundation study reports that over one-quarter of all higher education students are now taking at least one online course. There has been much speculation about when this growth will plateau, but it is expected to continue for the near future.



103% increase in enrollment over the last 5 years

Chart 2: HCCS Distance Education Records, 1998 to 2003, HCC OIR DataMart Files, Fall 2003 to Summer 2004; End of Term 2005 & 2009

HCC distance education trends follow this same national movement with increasing numbers of students enrolling in distance education courses. The undisputed growth in online learning will impact facility utilization therefore it is important to maintain accurate utilization records to determine the need for new facilities. In addition to determining need, the composition of facilities will also be impacted as online courses currently require some testing at on-site testing centers, students continue to seek administrative services on campus as well as gather for study groups or to socialize.

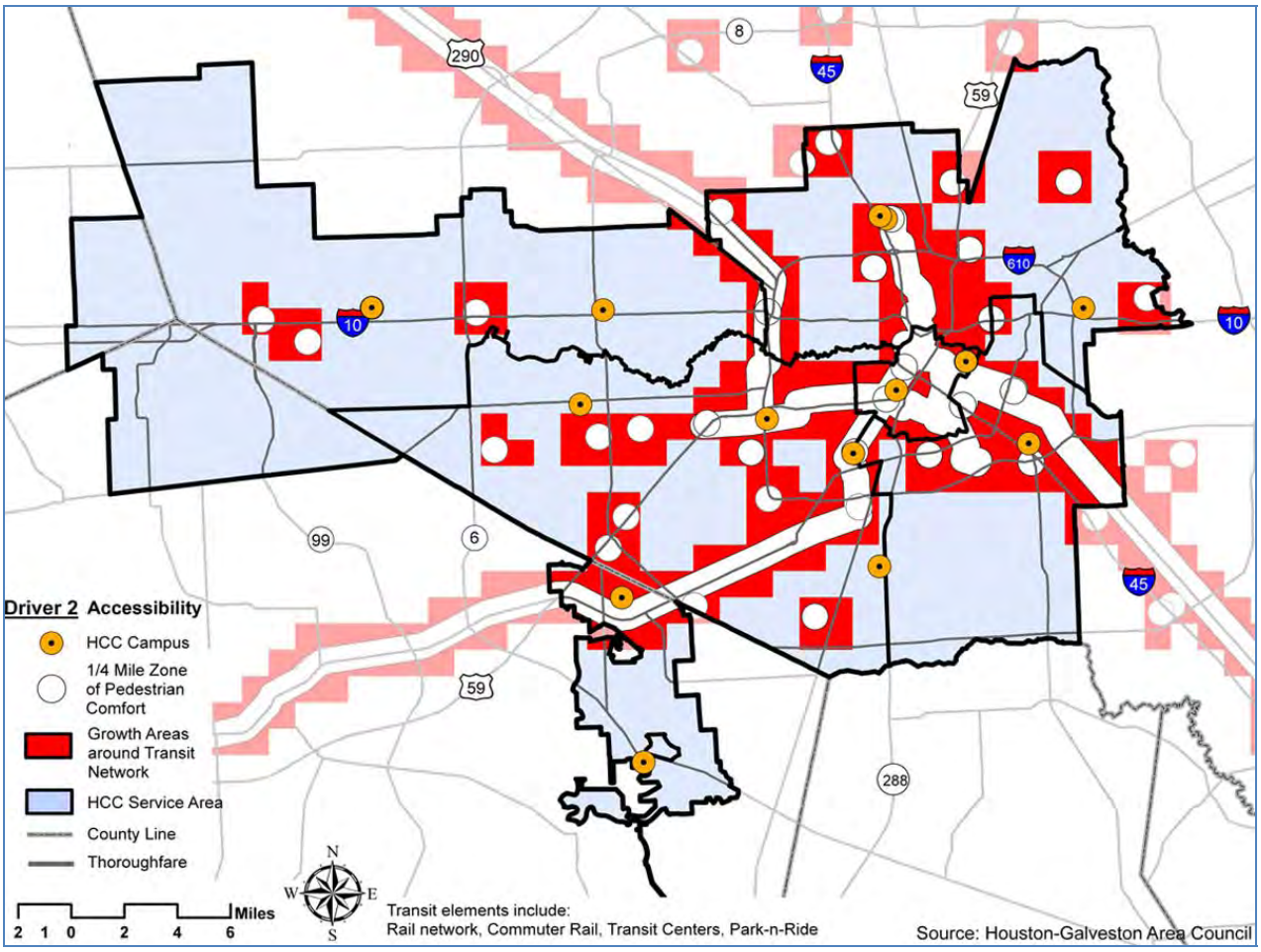
Recommended utilization and capacity studies will help to further define how existing space is being utilized and how to optimize it. By combining various statistics, these reports should help to forecast the need for new facilities as well as help to define their composition to best address the needs of the growing population of online students. The role of technology as it applies to adequately developing the facilities for this purpose should be a particular focus within the proposed studies.

1.2.3 Summary of Accessibility – Driver 2

Accessibility takes into account the ease with which people can take advantage of HCC services and the degree of convenience or difficulty students experience utilizing facilities. Accessibility to transit hubs and employment centers will become increasingly important as the Houston area continues to expand, the commuter rail and light rail networks are increased and HCC attracts more out-of-district students.

As online learning becomes more available and more attractive to students, increased enrollment in online classes will have an impact on the need and design of future facilities. On-line students will also need to travel to various campuses from time to time for testing, study groups, attend events or to address administrative issues therefore transportation and overall accessibility will impact them as well as the traditional students.

Accessibility is a significant factor in enrollment and must therefore be considered in facility location. The map below outlines the existing transportation network i.e. park-n-ride lots, transit centers and light rail and commuter rail networks that is being planned along with a quarter mile buffer around those transportation elements. The resulting red areas on the map are the recommended locations for new facilities to be considered. A quarter mile buffer is a standard urban planning measurement as research has proven that individuals are more likely to take transit if the destination is located within buffer zone as the distance is considered walkable.



Map 8: Summary of Driver 2 impact on future HCC site selection

1.3 Enrollment Pipeline

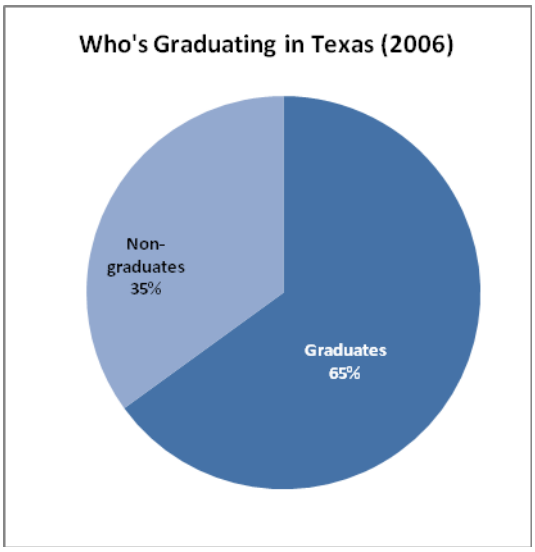
We have defined Driver 3 (Enrollment Pipeline) as the factors that identify and define the needs of the client, HCC students, specifically Graduation Rates and Industry Demands. These factors impact the development of future HCC facilities and significantly impact the make-up and needs of future student populations. Graduation rates and specific educational needs of incoming students are balanced with the employment needs of the Houston area industries and the skill sets they require when seeking new employees. Competition is also considered as HCC must compete with nine local community colleges to attract students.

1.3.1 Graduation Rates

The following statistics on high school graduation and college attendance come from Early College High School Initiative – started in 2002.

- Young people from the middle-class and wealthy families are almost five times more likely to earn a two- or four-year college degree than those from low-income families.
- For every 100 low-income students who start high school, only 65 will get a high school diploma and only 45 will enroll in college. Only 11 will complete a postsecondary degree. *(*Source: JFF analysis of data from the National Educational Longitudinal Study for students from the lowest-income SES quintile. The period of time measured includes outcomes from students' entry as ninth graders in 1988 to the year 2000.)
- Nearly half of US African-American students and 40% of Latino students attend high schools in which graduation from high school is not the norm. In the nation's 900 to 1,000 urban "dropout factories," completing high school is a 50:50 proposition at best. (*Source: Robert Balfanz and Nettie Legters. 2004. Locating the Dropout Crisis—Which High Schools Produce the Nation's Dropouts? Where Are They Located? Who Attends Them? Baltimore: Johns Hopkins University.)*[1]

Roughly 65% Texas students are graduating from high school according to Editorial Projects in Education and Research Center. The charts below demonstrate this statistic along with graduation rates for all seven of the Independent School Districts within the HCC service area. These differences in graduation rates show differences in the educational needs of students in these areas. Areas with higher numbers of students not graduating from high school will need more remedial courses and GED certification programs. Alternative graduation programs should also be emphasized. Students in these areas may also be geared towards early high school graduation programs.



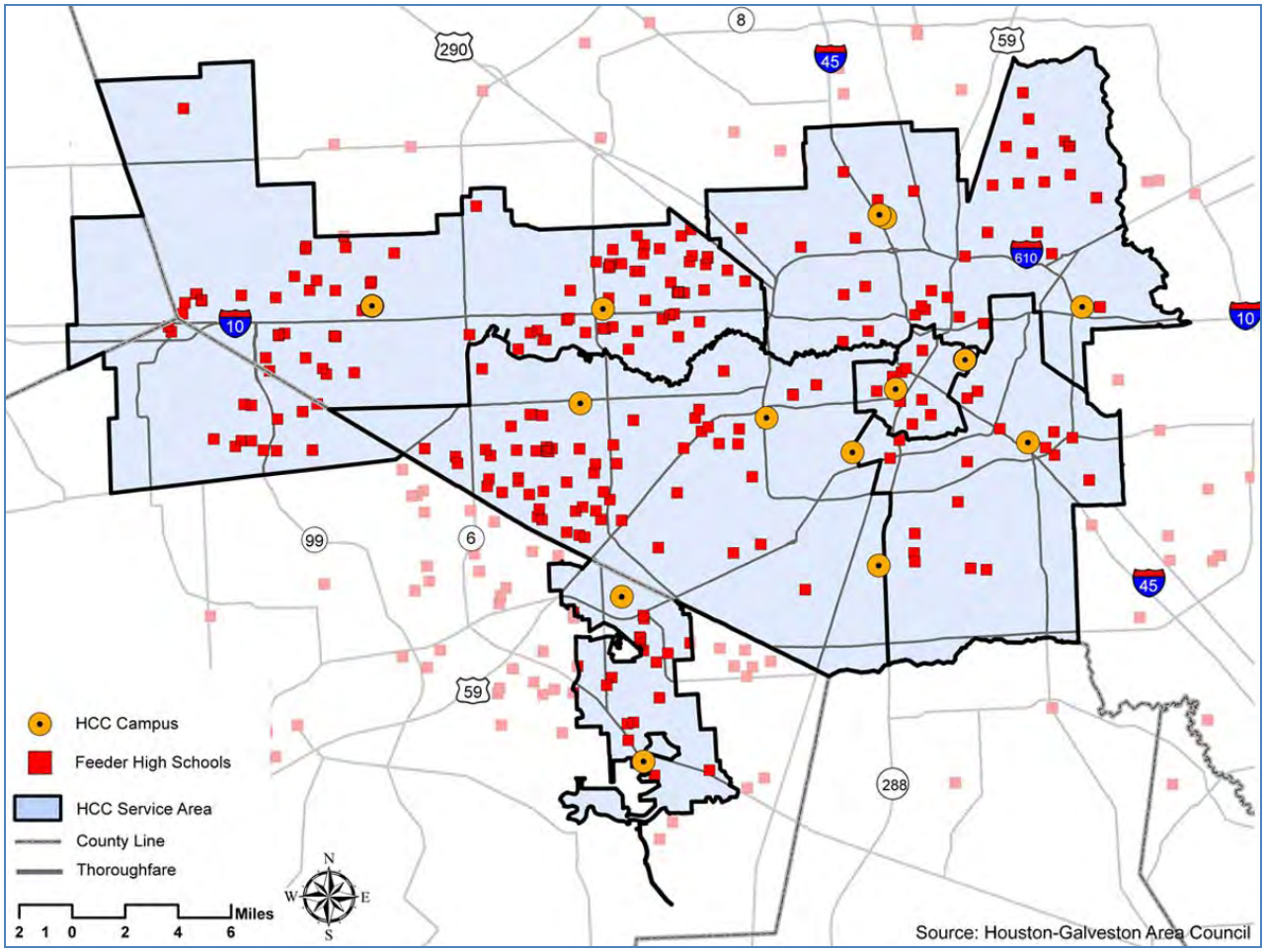
GRADUATION RATES (2006)			
ISD	ISD AVG	STATE AVG	NATIONAL AVG
Houston	42.8%	65%	68.6%
Stafford	64.1%		
Fort Bend	78.6%		
Katy	87.6%		
Spring Branch	62.3%		
Alief	44.6%		
North Forest	40.9%		

[1] http://www.earlycolleges.org/overview.html

Chart 3, Table 16: Graduation Rates - Sources: ISD information comes from each ISD noted. State Average comes from the Alliance for Excellent Education. National Average comes from the National Center for Higher Education Management Systems.

Graduation rates are seen as a fundamental indicator of school success. Almost 90% of the fastest-growing and highest-paying jobs require some postsecondary education. Having a high school diploma and the skills to succeed in college and the workplace are essential. Low-performing schools that fall within the HCC service area should be noted as students from these schools may be excellent candidates for HCC workforce development outreach and early high school graduation programs.

Identifying the ISDs with lower graduation rates and having future campus locations around those school districts with the offering of relevant coursework that supports high school education will play a key role in long-term success of HCC system by strengthening the enrollment pipeline.



Map 9: Location of High Schools that feed HCC enrollment

The map above outlines the local high schools that are feeder schools into the HCC system from the ISDs referenced. Additional ISDs outside the immediate HCC service area may also be viable feeder schools.

Early College High School Programs

A study conducted by John Hopkins University and the Associated Press named 42 high schools in the Houston area that have an attrition rate of 40% or higher. Amongst these 42 schools, 26 were located in the HCC service area. In such cases, HCC's involvement in the early college high school program can make a difference in state high school attrition rates by encouraging students to stay in school and providing them with viable education options. The table below outlines specific schools within the HCC service area that are feeding the current Dual Credit Program.

FEEDER SCHOOLS FOR HCC'S DUAL CREDIT PROGRAM	
Southeast College	HISD schools – Austin, Chavez, Eastwood, Milby, and the Sanchez Charter HSD

Table 17: Feeder Schools for Southeast College's Dual Credit Program

The early college high school program provides students the opportunity to receive a high school diploma and an associate's degree or up to two years of credit toward a bachelor's degree in the span of five years. Students take a mixture of high school and college classes in order to obtain their high school diploma and associate's degree. Each early college high school is a public school and is open to any resident in the school district. HCC operates six early high school programs throughout the Houston area. Early college high school classes also allow students to transfer credits to public universities in Texas and some private institutions. Available academic courses include English, History, Government, Biology and Economics.

Schools are designed so that low-income, first-generation college students, students learning English, minority students, and other under-represented students can benefit from programs where they can earn high school diplomas and associate degrees.

Early college high school classes are already being offered at several HCC campuses. For example, Spring Branch ISD students can attend classes at the HCC Spring Branch campus or at their high school.

1.3.2 Competition

HCC is not the only community college in the area that is looking at graduation rates, the need for GED classes and teaming with local ISDs to strengthen their enrollment pipeline with early college high school programs. The table below identifies some of these local colleges with basic comparisons on enrollment, tuition and student success as measured by the volume of degrees and certificates awarded in 2008-2009.

LOCAL COMMUNITY COLLEGE OFFERING ACADEMIC AND TECHNICAL CERTIFICATES AND DEGREES			
Community College	2009 Fall Enrollment	Tuition, Books and Fees	Degrees and Certificates awarded 2008-2009
Alvin Community College	5,189	$9,337	939
Blinn College	16,855	$12,521	1,253
Brazosport College	3,866	$11,300	208
College of the Mainland	3,916	$10,136	484
Galveston College	2,167	$11,794	373
Houston Community College	42,104	$11,522	3,577
Lee College	6,542	$15,570	1,420
Lone Star College System	55,491	$11,942	3,530
San Jacinto College District	30,449	$14,099	4,254
Wharton County Junior College	6,622	$12,015	675

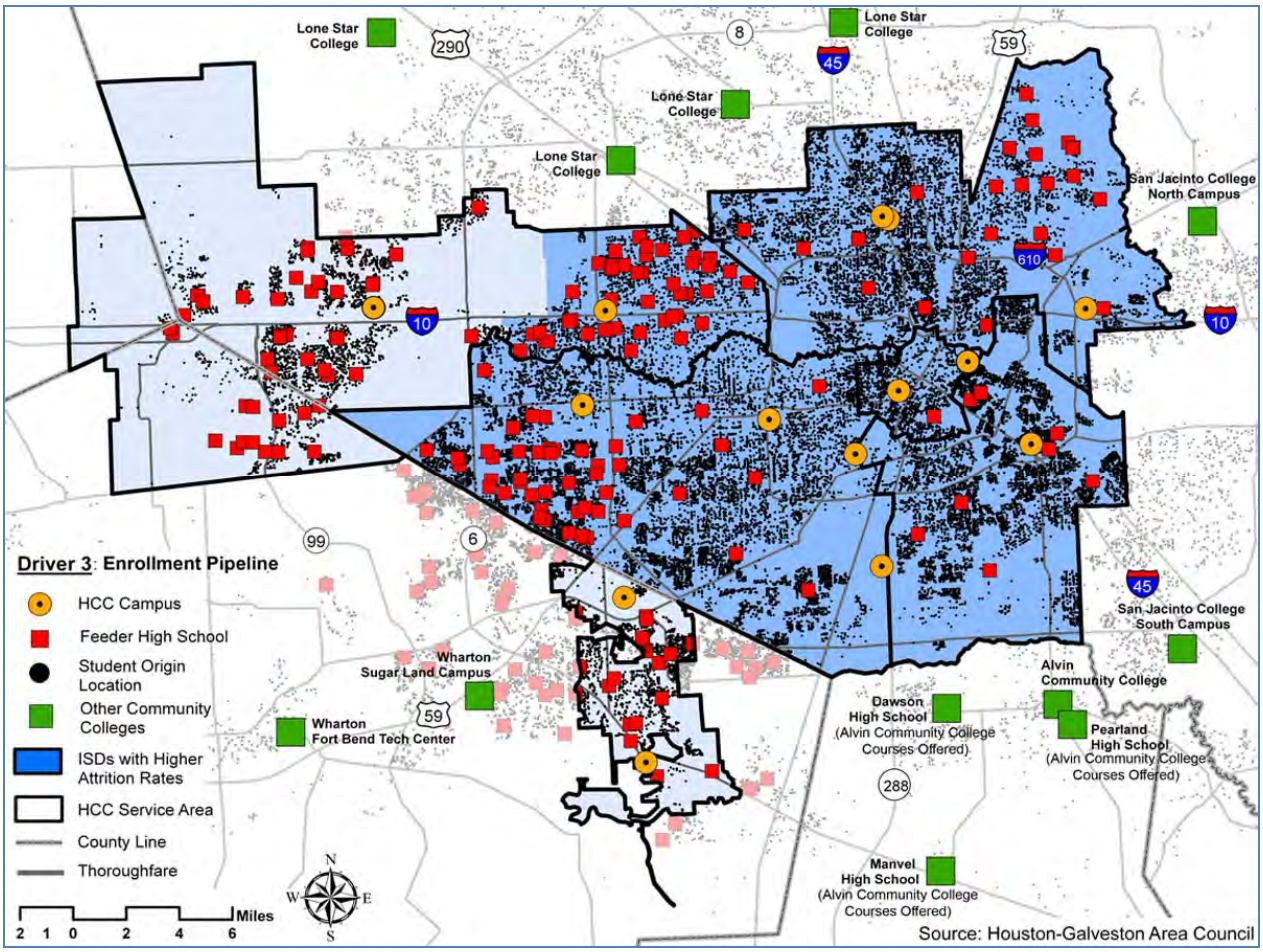
Table 18: College for all Texans, National Center for Education Statistics, Texas Association of Community Colleges

The individual colleges' programming will no doubt impact the students' selection of college. This topic will be addressed in the strategic plan. The prevue of the FMP is to factor in the impact of the location of the facilities themselves and what role that may play in attracting student enrollment. In addition to questions of programming, there is also the issue of benchmarking. An additional benchmarking study is recommended to identify colleges that are leading the nation in enrollment, engaging top level educators, attracting investment and promoting student success. These are the institutions of higher education that are also leaders in developing distance education programs and developing a network of well maintained campuses – in short they provide their students with accessibility options.

In Driver 2, Accessibility, we have already determined that for many students the cost of commuting is an important factor in deciding whether or not to attend higher education classes. With increased travel times expected, accessibility issues will be an even greater concern as traffic changes occur. Students will increasingly need to access classes near where they work and live especially during peak commute hours.

The dot density map on the following page shows the outline of the HCC service area along with current campus locations, that of the local competition and the concentration of HCC students represented by their home address. This map highlights the proximity of students to the HCC campuses and the number of students that come from outside the HCC service area. Approximately 80% of HCC's student population lives in-district while 20% of students live outside the HCC service area. It is important to note, there are additional locations for the local community colleges which fall outside of the map boundaries and these colleges are continuously seeking ways to grow – just like HCC. It is also interesting to note that many of

the competitor locations are in high growth areas like Tomball, Sugar Land, and Pearland. Several locations are also in the



Map 10: Competition Locations

1.3.3 Industry Demands

The need and direction of local workforce development will have a significant effect on Houston Community College as the skill set of the existing labor pool must change to accommodate demand. The City of Houston compiles jobs data using US Census Bureau statistics (from the 2000 US Census and the 2009 forecast) to compile local industry statistics. These statistics are broken down in the chart below to show the Top Industries for each of the HCC campus areas. Major trends include an increase in jobs for the health care industry and construction (which has recently fallen off due to economic conditions) , both of which saw significant increases in jobs in every HCC service area from 2000 to 2009. Industry losses were seen in Manufacturing, Wholesale Trade, Information, and Utilities in every HCC District.

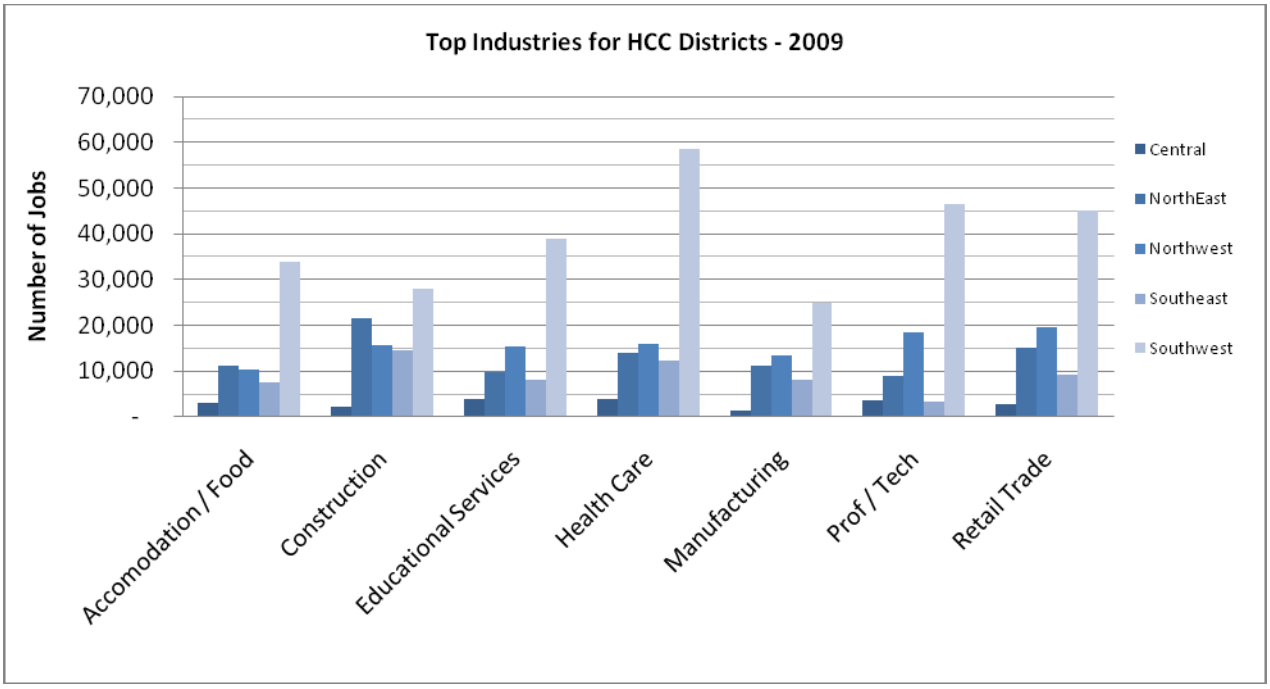


Chart 4: Top Industries for HCC Districts

Community College class offerings must change to accommodate the demands of the existing labor pool in order to fully address the shifting skill sets required in the local labor force. It is important to track the growth of specific industries in the Houston region and their attendant labor needs. Collecting current data and leveraging industry partnerships will be important for input and can help forecast future workforce needs.

Community colleges generate $276 million per year in intangible benefits associated with increased rates of higher education, including improved health, reduced unemployment, crime, and welfare spending. (HCC Foundation)[2] Career technical programs are "essential to the state's effort to reduce dropout rates and to meet employer demand for current and future jobs, many of which do not require a bachelor's degree."[3] For a strong and productive workforce, strong educational skills will be imperative. Texas must focus on efforts to improve graduation rates and to provide workforce specific training to its population.[4]

Despite a nation-wide economic downturn, Texas' economy has remained relatively strong and business leaders continue to see Texas as being a strong location for business development. CEOs have ranked

[2] http://www.hccsfoundation.org/Page.aspx?pid=261
[3] Advancing Texas, Strategic Plan for the Texas Workforce System, [FY 2010-FY2015], Texas Workforce Investment Council, Austin, Texas, 2009
[4] Texas Workforce Investment Council, *Texas Index* 2007.

Texas as the top state for job growth for the fourth year in a row.[5] Last year, Houston ranked in the top five for Best Cities for Jobs ranking conducted by Forbes magazine.[6] Understanding the local job market, following industry demands and offering relevant courses at future locations will help drive enrollment.

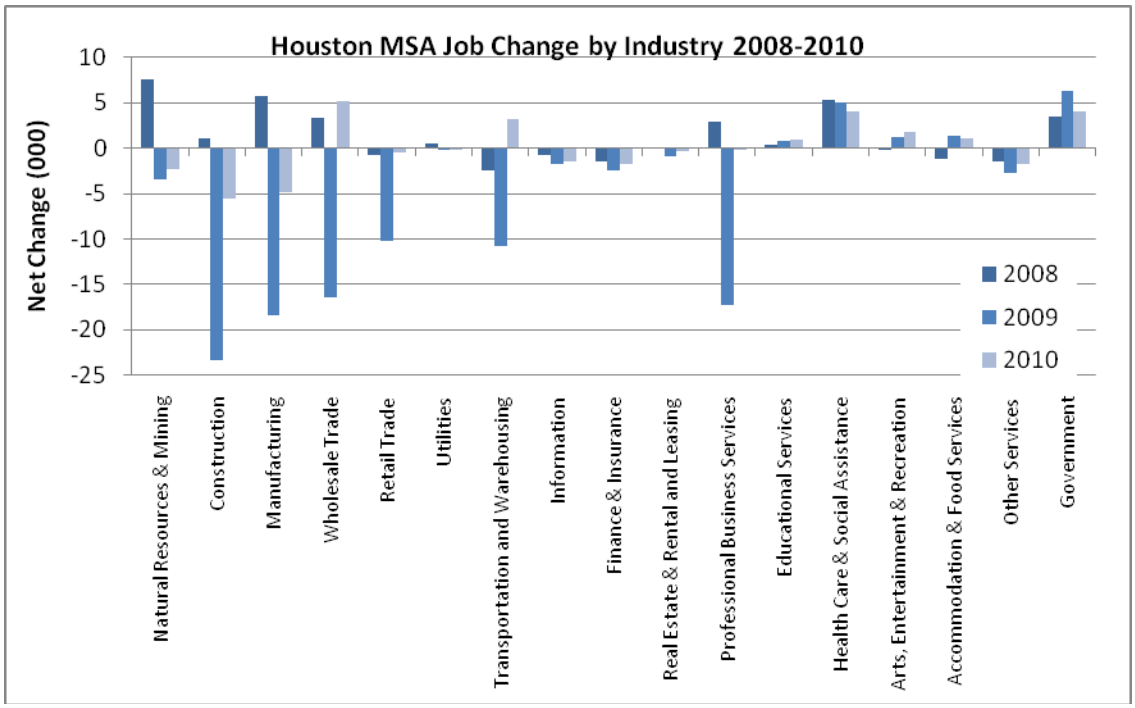


Chart 5: Houston MSA Job Change by Industry 2008-2010 – Greater Houston Partnership (GHP)

The chart above shows the most recent change in employment statistics while the chart below offers a forecast of employment through 2016. Tracking the current and future industry demands will help to: Identify partnership opportunities, required programming and assist in facility planning.

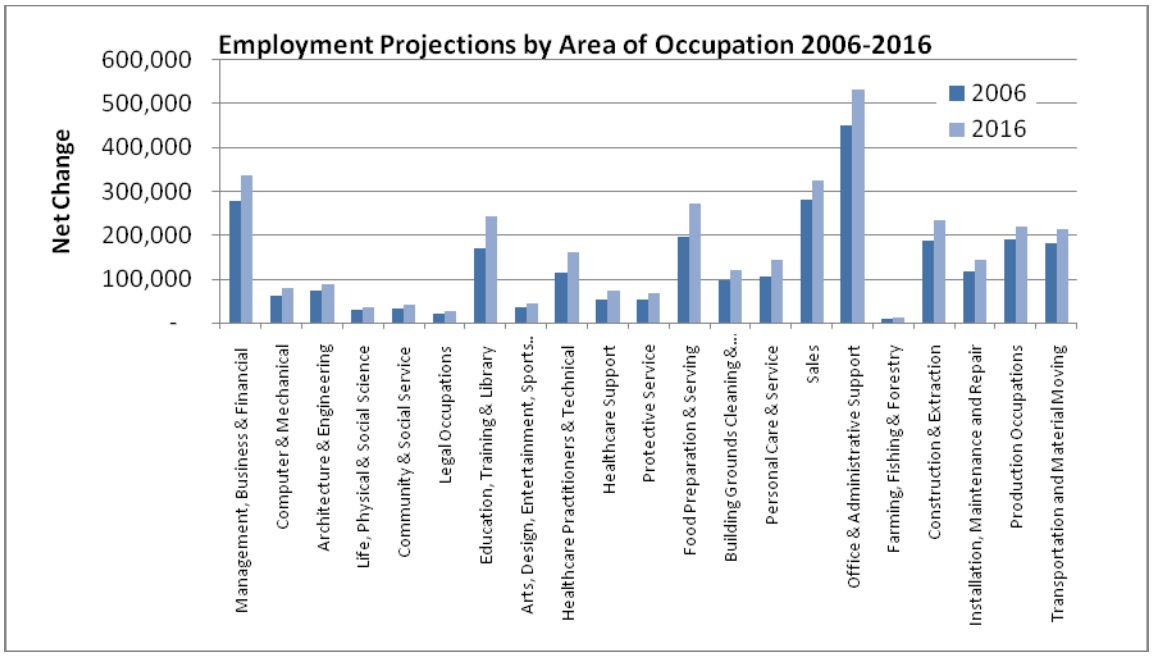
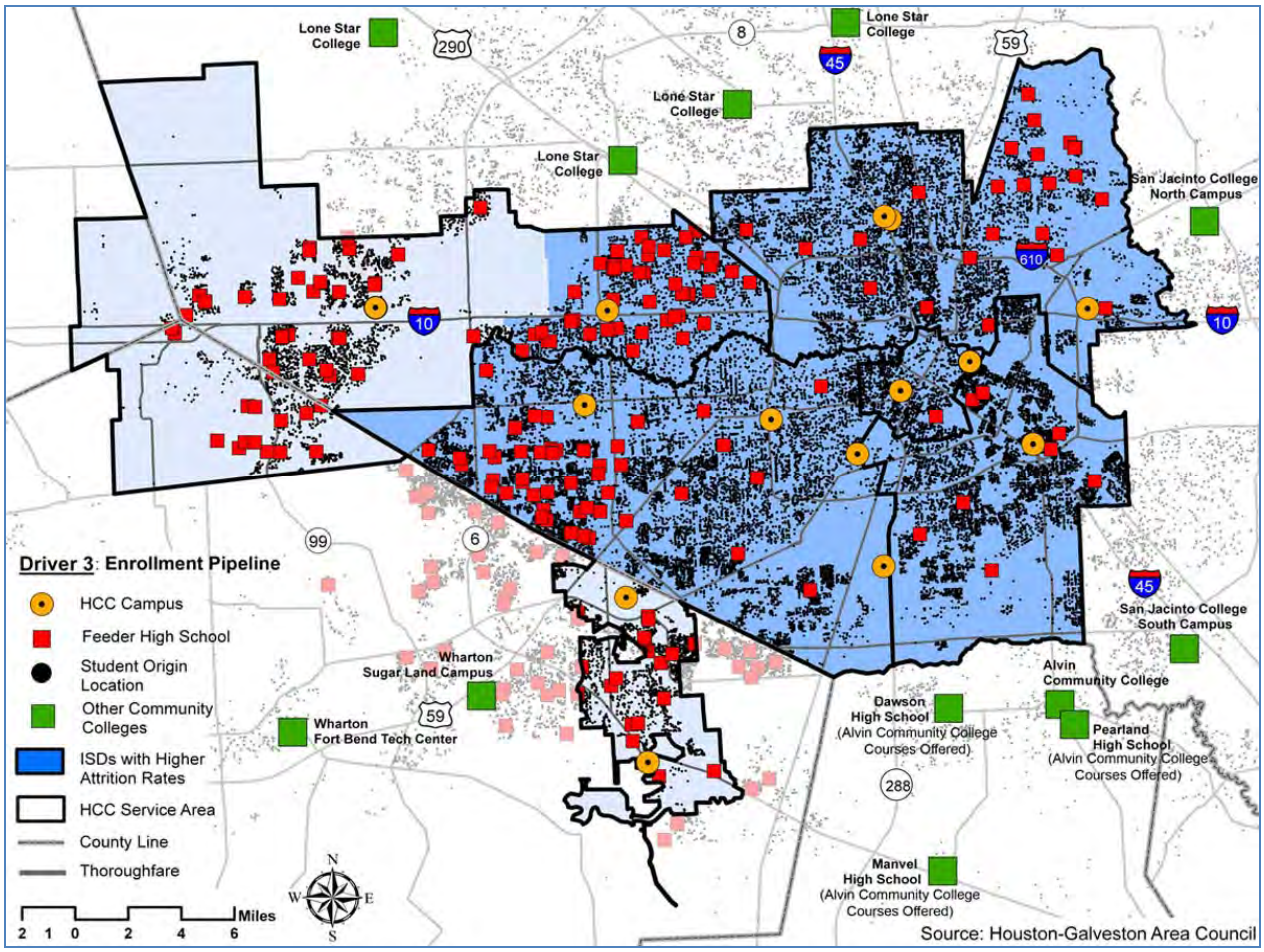


Chart 6: Employment Projections by Area of Occupation 2006-2016 - GHP

[5] Chief Executive Magazine, January/February 2009.
[6] Forbes.com, April 14, 2009.

1.3.4 Summary of Enrollment Pipeline – Driver 3

HCC has been successful in creating a pipeline from area high schools and has been innovative in creating student retention programs to ensure student success rates. The map below outlines the local high schools that are feeder schools into the HCC system from the ISDs referenced. Additional ISDs outside the immediate HCC service area may also be viable feeder schools.



Map 11: Summary of Driver 3 impact on future HCC site selection

1.4 Summary of Drivers

The location of future facilities is critical to the successful delivery of HCC services. The FMP plays an integral role in the overall planning process by providing a guideline for how to evaluate and best identify prime facilities locations. The map below is a compilation of highest growth areas for each of the three main drivers identified in this study and outlined in the figure at right.

Locating facilities in areas with the highest growth increases the potential utilization of the facility which also implies increased enrollment. As the map below highlights, growth in the greater Houston area through 2035 will be significant and provides HCC with many choices for expansion. Supplemental studies will help to determine facility composition and timing of construction. This information will feed the bond package preparation process and provide useful support to the final development of VISION 2035.

The map was compiled by developing a cumulative index of all three driver summary maps. Because expansion of current facilities will be largely determined by future studies already outlined in this report, a 2-mile buffer was added around each existing facility.

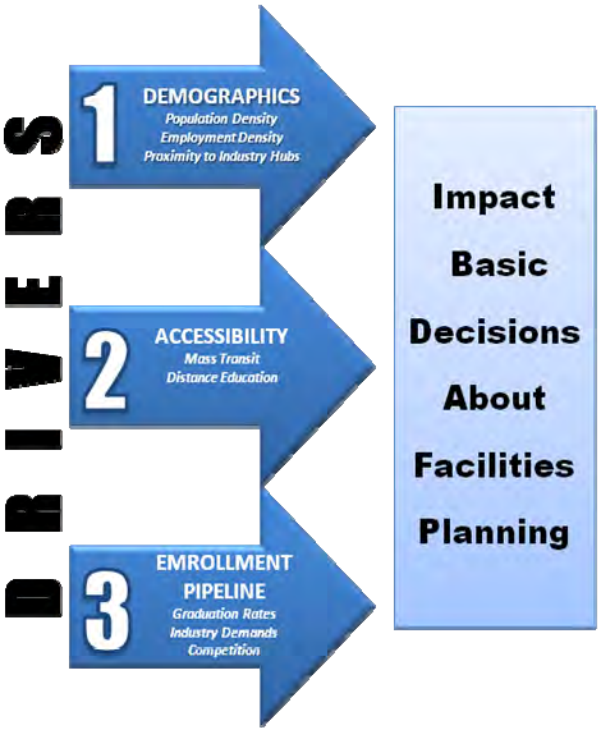
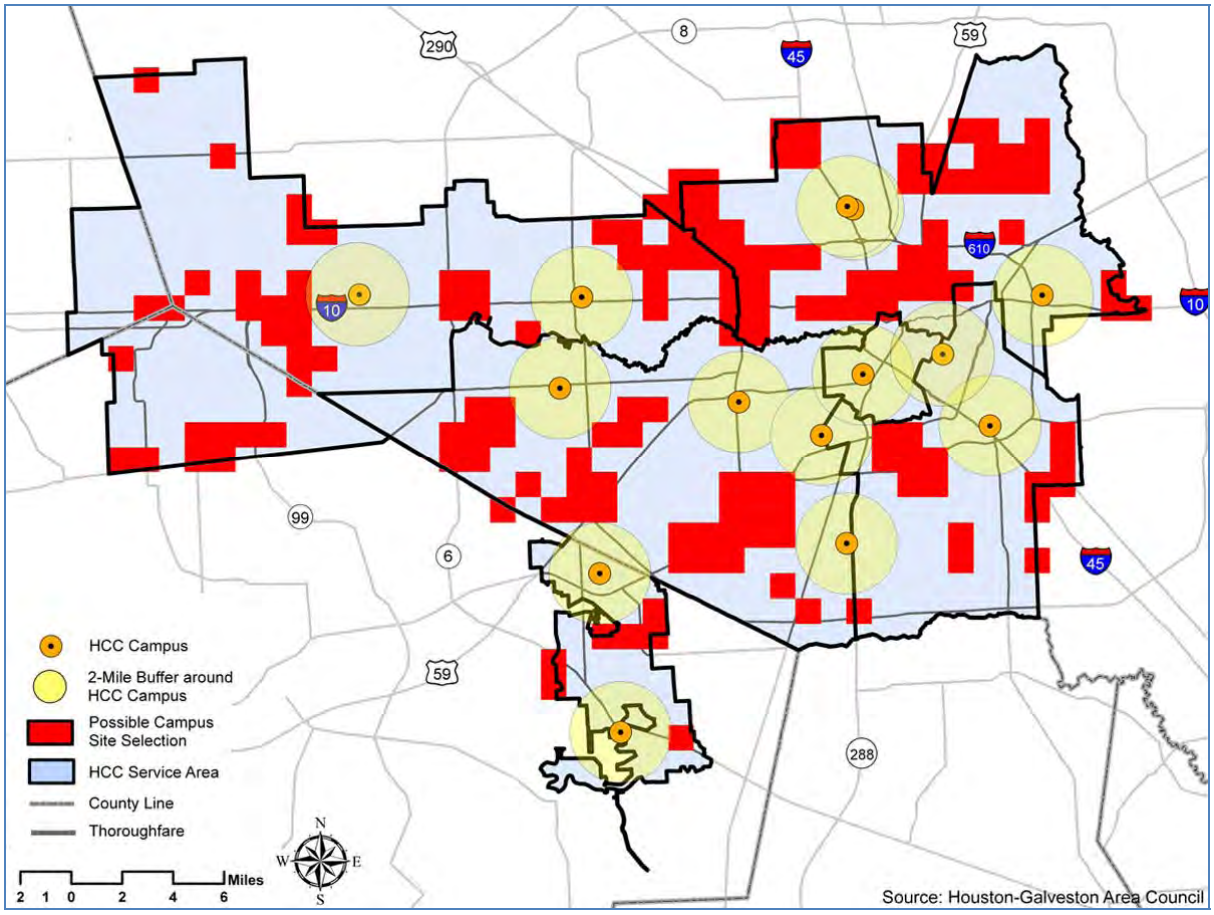


Figure ?: Facility Location Drivers



Map 12: Summary of all three Drivers impact on future Southeast College site selection

The resulting composite map identifies the following areas that, under the given criteria, suggest the optimum growth potential for future HCC locations:

- **Southeast College** - MacGregor and Gulfgate Pine Valley, South side of Hobby Airport around Minnetex area, Southbelt/Ellington area (west of I-45) and Edgebrook (East of I-45).

HCC FACILILITIES MASTER PLAN

SOUTHWEST COLLEGE

INDIVIDUAL SUMMARY BY DEMOGRAPHICS

DRAFT COPY

1 DRIVERS

For HCC to effectively expand to meet future demand, it must develop an understanding of the changing landscape in which it finds itself. The location of future facilities is critical to the successful delivery of services to the community. The FMP, used in combination with HCC's strategic plan, which will be published later in the year, plays an integral part in the overall planning process by providing a guideline for how to evaluate and best identify prime facilities locations.

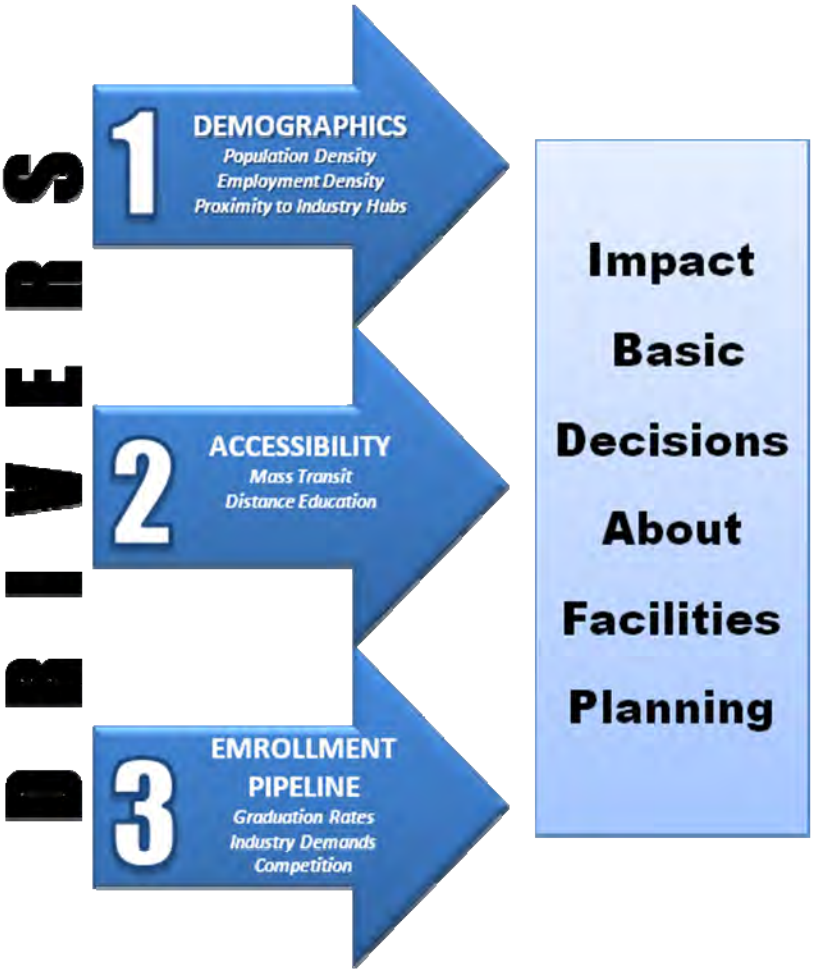


Figure 8: Facility Location Drivers

When researching factors that influence facility development at HCC, many factors emerged including:

- Population
- Economy
- Transportation Access
- Economic Growth
- Facilitate Organic Growth
- Community Redevelopment
- Feeder Patterns
- Funding
- Strategic Planning
- Programming
- Educational Delivery System
- Enrollment
- Return on Investment
- Proximity to Other HCC Campuses
- Take what you can get
- Budget
- Competition
- Benchmarking

Ideally, the research behind the need for a new facility would include all of these factors along with consideration of the needs of the entire system to prioritize locations. To narrow the scope of the discussion, those elements that have the most significant impact on facility development have been short listed into the chart to the left.

By examining and truly understanding changes in the three short listed drivers**,** HCC will be able to carefully plan and maintain the managed growth of the College. Once identified, these drivers were then reviewed for accuracy by planning and development professionals at the City of Houston and the Houston-Galveston Area Council, as well as, noted researchers in the areas of population and urban growth. These drivers are represented by tangible data that is collected periodically by reliable sources and will be periodically updated and available for reanalysis and incorporation into the model.

Using this report, decision makers can assess the best location for future facilities in keeping with the College's goals and VISION. The FMP is one tool in the overall planning strategy and must be considered in connection with HCC's overall VISION, strategic, academic, and financial plans. Where facilities are located, their composition, and how they function must reflect the goals of the institution and further those objectives.

1.1 Demographic

Demographics in the HCC service area and changes to the service population will drive questions of facility location and type. Associated with demographics are the issues of programming (which is covered in the strategic plan), current utilization and capacity (studies are recommended in both areas). Students frequently attend a specific campus based on proximity to their homes or workplace. Therefore, the two greatest factors that make up questions of demography, as they relate to the future needs of HCC, will be residential density and employment density - determined by how many people are living or working in an area.

1.1.1 Population Density

The key to understanding the demographic outcomes for the region are most important in terms of population densities. Concentrations measure the number of people in a defined area. While forecasts predict increases in populations across the board, it is where this increase is sharpest that is most important because it will have the greatest impact on facilities planning.

The Brookings Institute has labeled Houston as one of the "Next Frontiers" based on its high growth, high diversity and high education compared to the 100 largest metro areas in the US – according to the Brookings Metropolitan Policy Program. The HCC service area contains almost all of Harris County and parts of Fort Bend and Waller Counties. The service area is home to over 2 million residents. In context with the HCC service area, the population density in the year 2010 shows the highest rate of density:

- inside the 610 loop,
- southwest part of Houston inside Beltway 8 between I-10 and US-90A,
- satellite cities such as Missouri City, Sugar Land, Katy and
- around I-45 corridor between Beltway 8 and 610 area.

The tables below breakdown the 2009 population by gender for HCC and of the Southwest College.

POPULATION INFORMATION, 2009 EST.	
Total Population	2,140,484
Adult Population	1,566,791
Male	50.3%
Female	49.7%

Table 11: Houston Area Population Information – H-GAC 2035 Regional Forecast

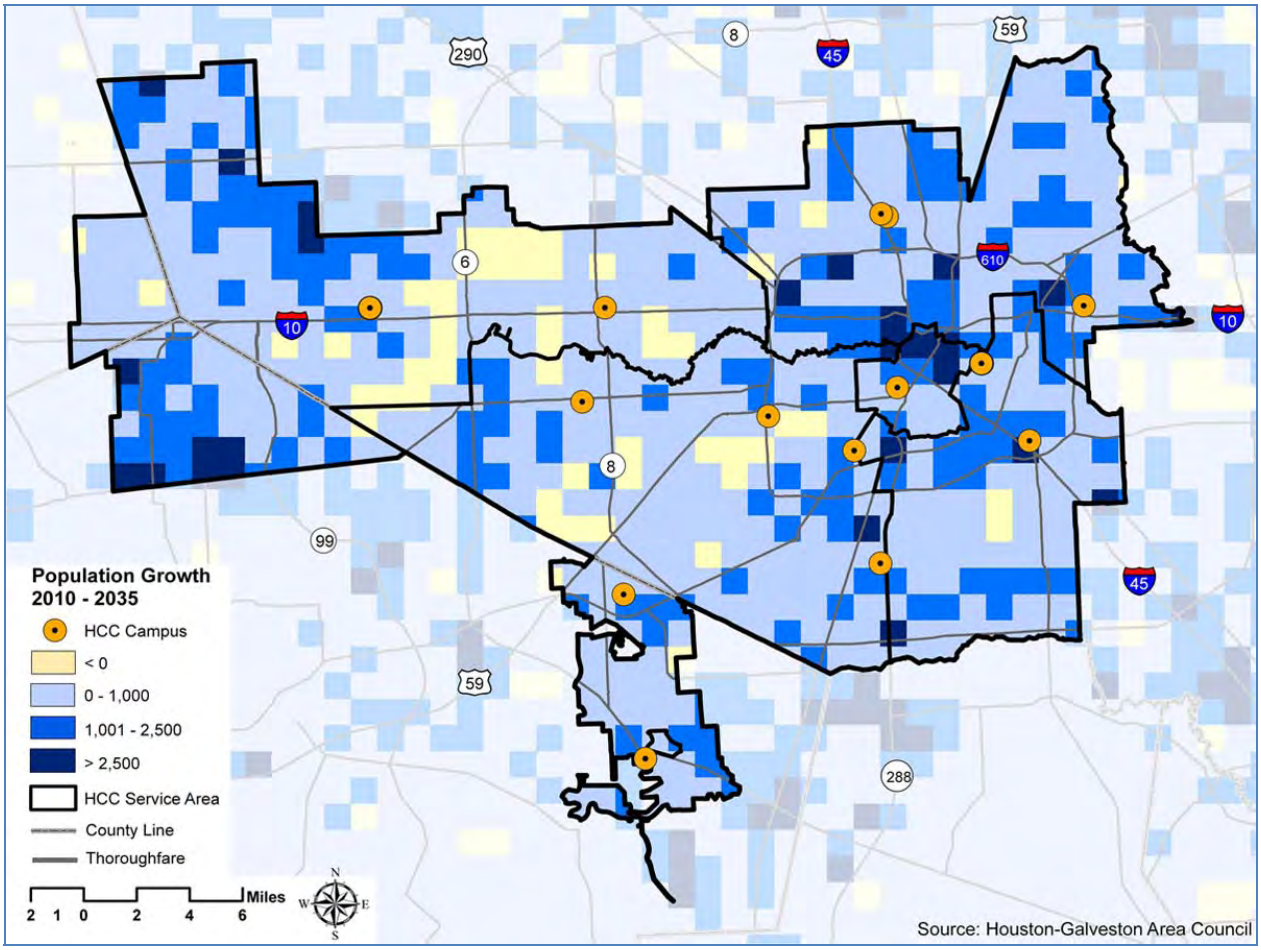
POPULATION IN HCC COLLEGES			
HCC College	**Current Enrollment**	**2010**	**2035**
Southwest	95,973	988,481	1,115,094

Table 12: HCC Southwest College Enrollment – H-GAC 2035 Regional

Population Growth (change) between the years 2010 – 2035:

Simply looking at the population density will not help us understand the areas experiencing the largest growth. We have to understand the growth pattern and identify areas that will undergo change. In the map below, the dark blue areas highlight the highest population growth between 2010 and 2035.

- In the Southwest part of the city, Sugarland and Rosenberg will have higher population growth.



Map 2: Population Growth between years 2010 – 2035 (Data source: H-GAC)

Placement close to population growth centers creates an opportunity to capture:

- Students requiring GEDs
- Early College High School students
- The unemployed seeking training/retraining
- Students that may require public transport to access education

1.1.2 Employment Density

Houston and its surrounding ETJ are home to more than 1.7 million jobs. Houston's employment growth has exceeded the national employment growth for several years. By 2035, employment will see a 40% increase to 613,000 jobs and the ETJ will see an increase of 160,000 jobs or a projected 50% increase. The following charts show job growth expectations for the HCC Service Area.

HOUSTON AREA EMPLOYMENT 2007 AND 2035		
	2007	**2035**
City	1,531,000	2,115,000
ETJ	160,000	320,000

Table 13: Employment Growth – H-GAC, 2035 Regional Growth Forecast

JOBS BY HCC COLLEGES: 2010 AND 2035		
HCC COLLEGES	**2010**	**2035**
Southwest	640,000	788,000

Table 14: Job Growth in Southwest College - H-GAC

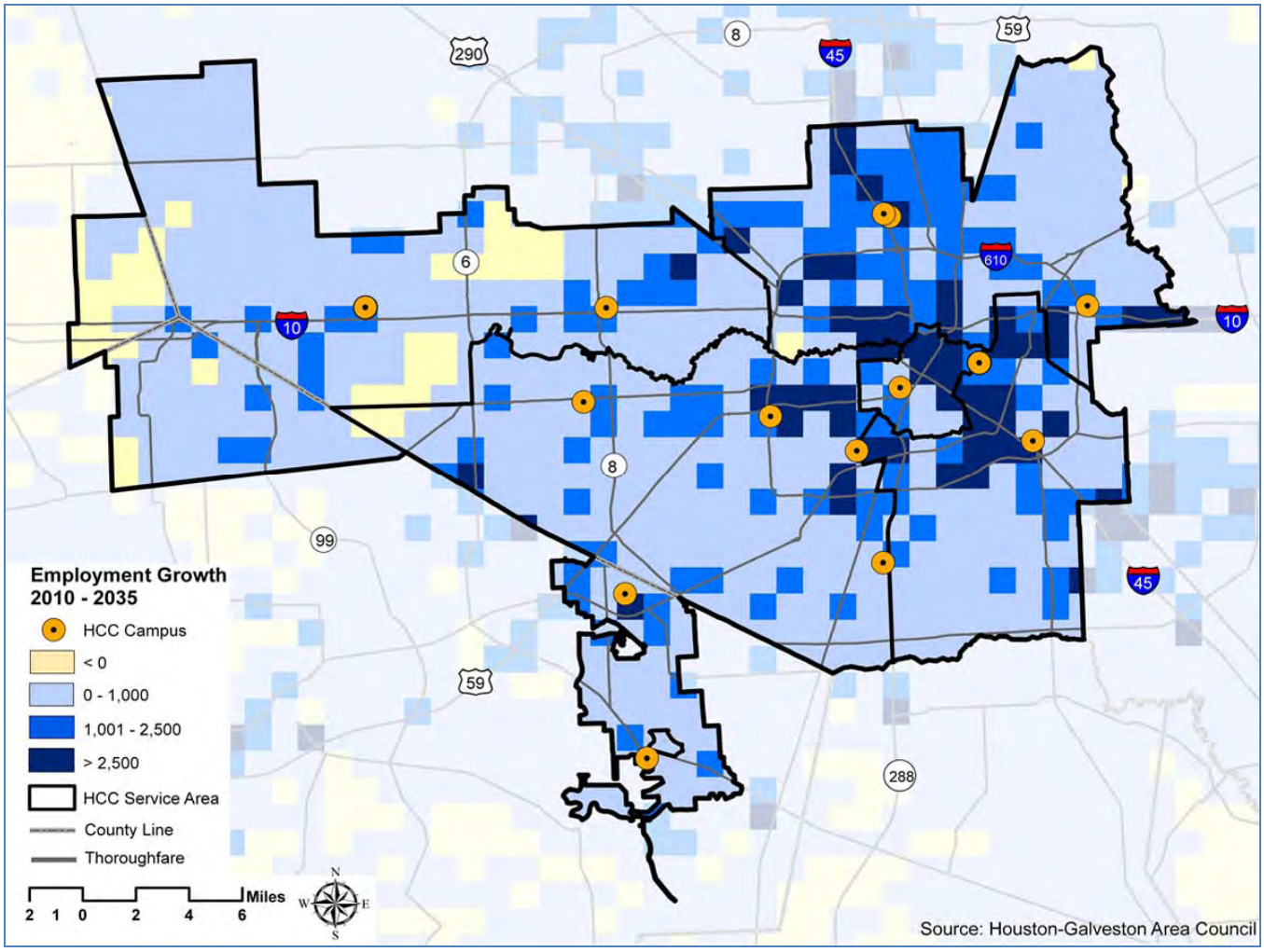
Employment density in the year 2010 shows high employment concentration in Greenway Plaza, the Galleria and the Southwest Freeway corridor. By 2035, the growth is even more significant around the Greenway Plaza area, Texas Medical Center, Myerland and Sugar Land.

Because HCC students are more likely to attend school near where they work or live, it is important to note where the major employment centers of Houston are located. As traffic and travel times become increasingly important to Houston motorists this connection will only become more pronounced.

Employment Growth (change) between the years 2010 – 2035:

The map below outlines the areas experiencing the highest employment growth levels between 2010 and 2035.

- In the South, the areas around SH288 corridor outside of Beltway 8 will experience employment growth.
- In the Southwest the areas around US-59 corridor between Meadows Place and Sugar Land will have higher employment growth.



Map 3: Employment Growth between years 2010 – 2035 (Data source: H-GAC)

Placement close to employment growth centers creates an opportunity to capture:

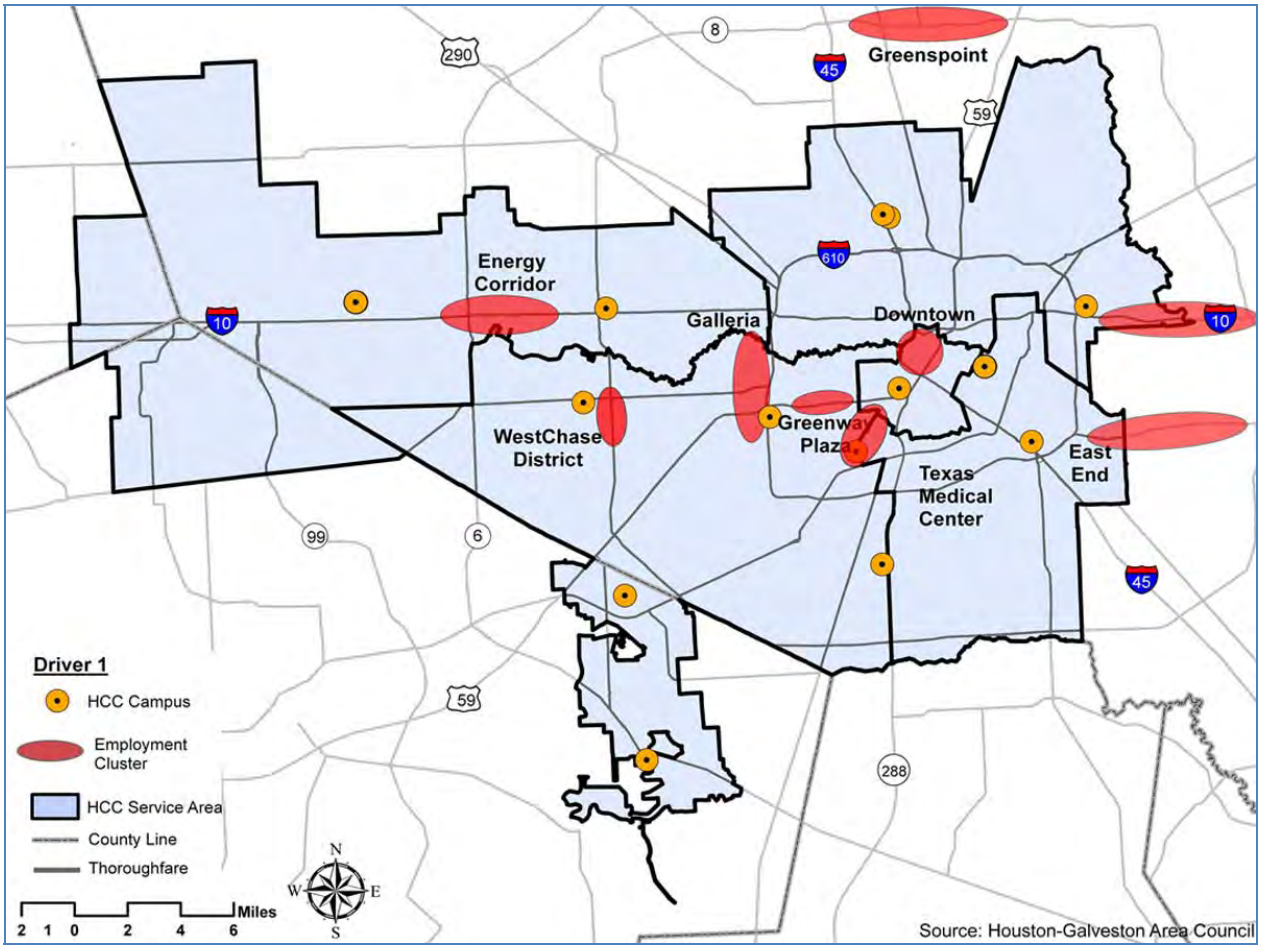
- individuals seeking convenient training to upgrade their skill set,
- individuals seeking leisure learning opportunities,
- creates a useful venue for corporate retreats and
- provides partnership opportunities with industry leaders to service their training requirements.

1.1.3 Proximity to Industry Hubs

Houston is the center for many key industries including health care, aerospace, finance, petrochemical and oil refining. These industries are generally centralized in employment and industry clusters around the City and also serve as feeders for many potential students who are looking to advance their professional development through part-time enrollment and technical training courses. These employment clusters include Downtown, the Texas Medical Center, the Galleria, Greenspoint, Westchase, Clear Lake, Greenway Plaza, and the large petro-chemical and refinery centers located

mainly on the east side of the City. As Houston continues to evolve, new hubs will develop and others will decline. Tracking these changes is important in charting the growth of HCC.

The HCC campus system is spread out over a considerable geographic area. The Central Campus is well placed in the downtown area and is easily accessible to the Mid-Town and inner City population centers and Downtown and Midtown business districts. Coleman College is located in the Texas Medical Center and offers specialized programs for the healthcare industry. The Spring Branch and Westgate campuses are situated near the employment hubs in the Energy Corridor, while the industrial and Port areas of the East End are near both the Northeast and Eastside Campuses.



Map 4: Employment Clusters

The Texas Medical Center

The Texas Medical Center is perhaps the largest medical facility in the world and includes 13 hospitals and affiliated research branches occupying over 140 buildings. The Texas Medical Center is ranked as the 12th largest business district in world and is the largest employer in Houston. It is bordered by Hermann Park, Rice University, Reliant Park and the Museum District.

Galleria

The Galleria shopping complex itself is a massive facility of over 2.4 million square feet of retail space including two hotels and three office towers. The Galleria has three office towers with the Galleria Financial Center that serves as home to many financial institutions including Merrill Lynch, UBS AG, Citigroup, as well as, law offices and energy trading companies. The area includes the neighborhood of Uptown and is bordered by Westheimer Road, Memorial Park, I-10, and US-59.

Westchase

The Westchase District has steadily attracted businesses such as Halliburton, one of Houston's largest employers, which has announced plans to relocate its employees from the downtown facilities to the northern and Westchase facilities by 2012. Chevron, BCM Software, Dow Chemical, and Jacobs Engineering, each have a significant presence in the Westchase area. Westchase straddles Beltway 8 west between I-10 west and US-59 and is also accessible by the Westpark Tollway.

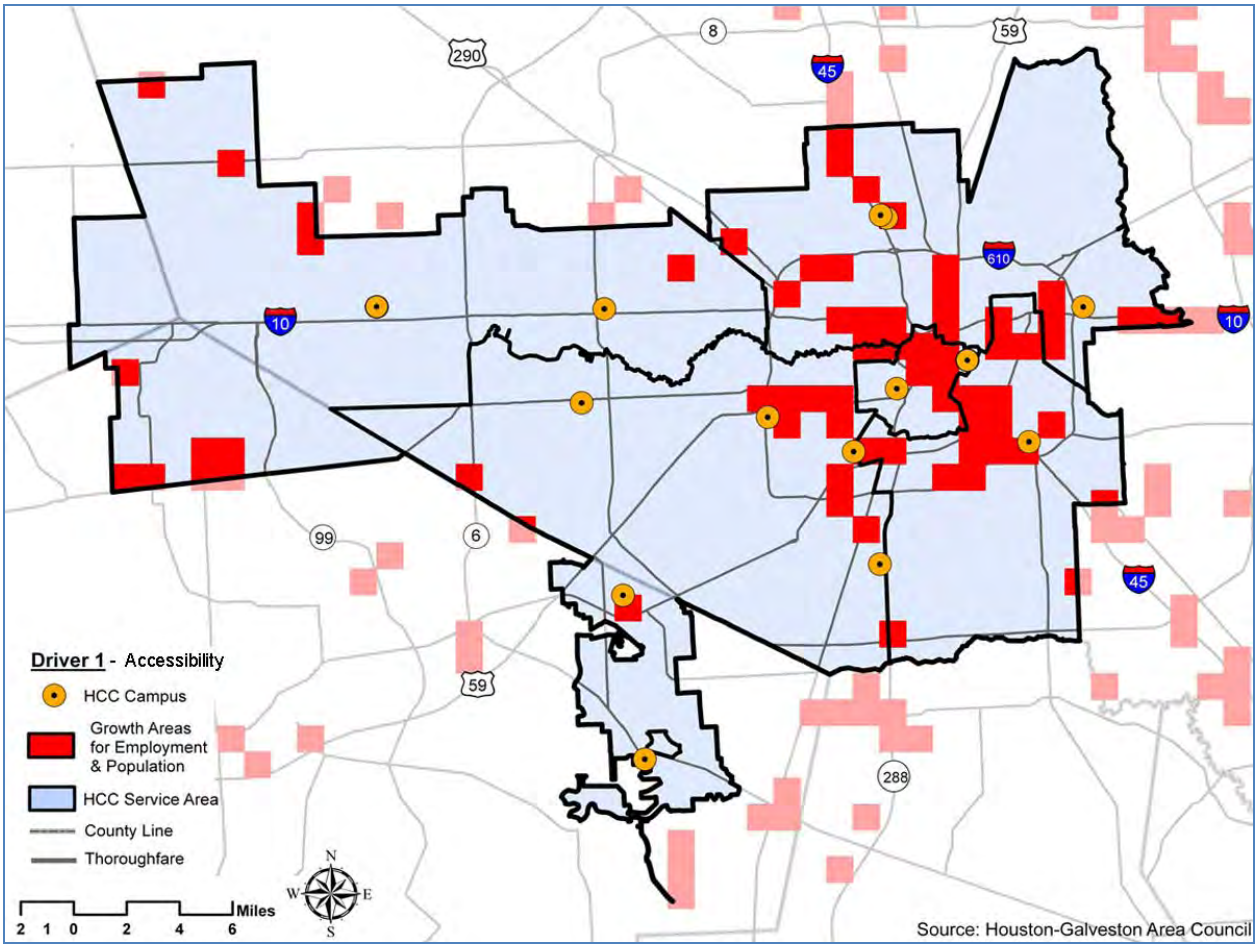
Greenway Plaza

Greenway Plaza is a unique master planned mixed use area located near US-59. It is home to the Renaissance Hotel, Lakewood Church, and boasts over 4 million square feet of office space spread across 10 high rise buildings. The city neighborhoods surrounding Greenway Plaza are some of the most affluent in Houston such as River Oaks and the incorporated City of West University. Amegy Bank, the corporate headquarters for Taco Cabana, FlightAware, Internet America, China Airlines, and the Chinese Consulate Office of Taipei are located in Greenway Plaza.

1.1.4 Summary of Demographics – Driver 1

The two greatest factors related to demographics will be residential density and employment density - determined by how many people are living or working in an area. Students attend a specific campus largely based on proximity to their homes or workplace, thus making it important to track the changes in these demographics to uncover the most likely sources of future enrollment.

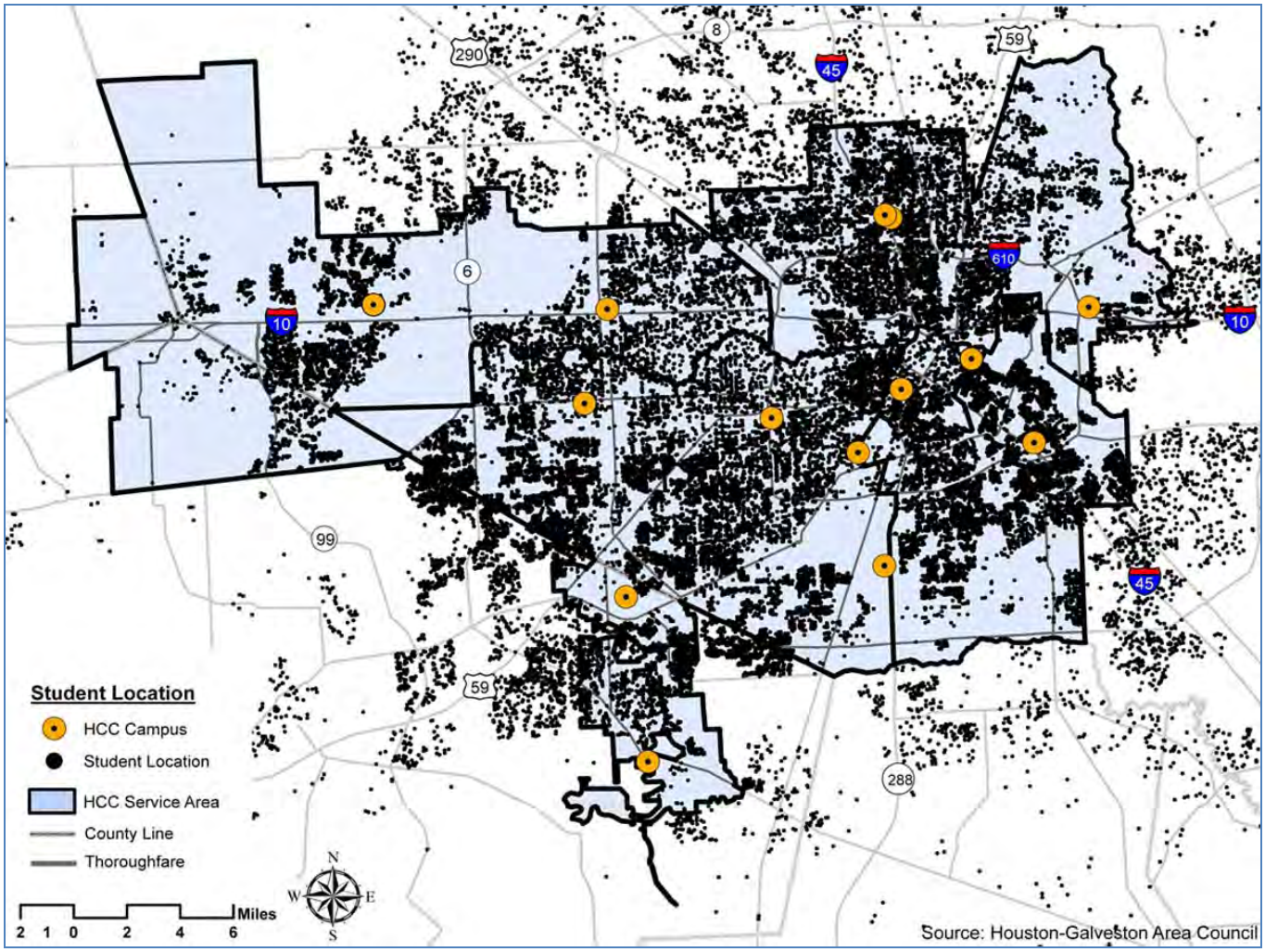
We have defined Driver 1 (Demographics) as combining the growth in population with employment density and refining them to the most significant areas of impact. It yields a concentrated view of critical growth areas. These areas are highlighted in the map below. These will be the focal points for HCC when considering placement of new facilities and possible expansion of existing facilities in order to leverage the projected growth.



Map 5: Summary of Driver 1 impact on future HCC site selection

1.2 Accessibility

We have defined Driver 2 (Accessibility) as a combination of transportation connectivity to future HCC campuses and trending growth in distance education as pertains to programming and campus planning. The dot density map below shows the outline of the HCC service area along with current campus locations and the concentration of HCC students represented by their home address. This map highlights the proximity of students to the HCC campuses and the number of students that come from outside the HCC service area. As the Houston area continues to expand, the commuter rail and light rail network is increased and HCC attracts more out of district students, it is vital to understand the role of transportation and the importance of providing students with necessary accessibility to transit hubs and employment centers.



Map 6: Student Location year 2009 - HCC

Approximately 80% of HCC's student population lives in-district. The dot density map above shows that many also live in close proximity to an HCC campus. However, 20% of students live outside the HCC service area which suggests that locating future campuses near transit, light rail and freeway corridors would provide more accessibility to the students to get connected with the HCC campuses and may result in increased enrollment.

Accessibility takes into account the ease with which people can take advantage of HCC services and the degree of convenience or difficulty students experience utilizing facilities. Reviewing accessibility is driven by an examination of area transportation infrastructure and the internal role of non-traditional and online course offerings. Generally speaking, the more choices students have for *how* to get to campus, the more positive an experience they will have.

1.2.1 Mass Transit

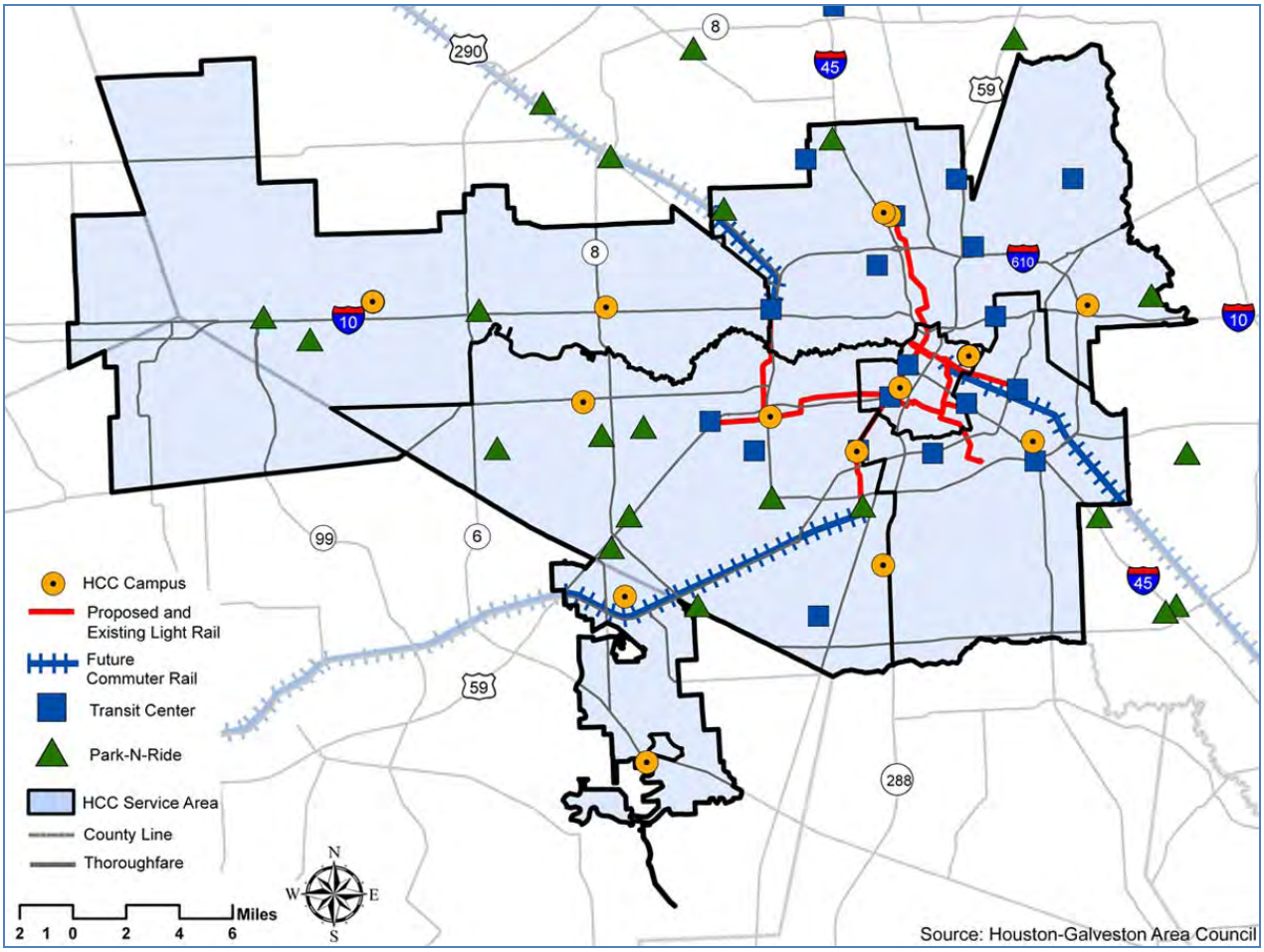
For many students the cost of commuting is an important factor in deciding on whether or not to attend higher education classes. The convenience of mass transit located near HCC facilities can increase access to higher education opportunities especially for economically disadvantaged students who may not have means for private transportation.

According to the H-GAC City Mobility Planning Travel Demand Model the number of work trips is expected to increase by 67% during the study period (through 2035) and travel time in the City and ETJ is expected to increase by two hours. Plans for the future transportation infrastructure expansion to address this projected growth include an additional 14% increase in overall street capacity over the next 25 years including 8,256 street lane miles or 13% in the City and 14,705 or 23% more street lane miles in the ETJ.

With increased travel times expected, accessibility issues will be an even greater concern as traffic changes occur. Students will increasingly need to access classes near where they work and live especially during peak commute hours. Many more students may choose to bypass traffic by utilizing mass transit options that can carry them from work or home to class in order to avoid transit delays.

Planned Transit Network Additions

In addition to the extensive METRO bus network across the greater Houston area, the freeway system and commuter rail and light rail are all critical for HCC students. The map below outlines the Houston transportation network with existing and planned transit facilities. The additional mass transit will provide greater mobility for all Houstonians and has the potential to increase enrollment.



Map 7: Light-Commuter Rail Corridors, Park-n-Ride, Transit Center Locations - H-GAC

Commuter Rail

Southwest Extension-Fort Bend County - METRO is also looking to expand its reach into Fort Bend and plans to include an 8.2-mile project along the US-90A corridor. With this project, Fort Bend County residents could board a single METRO train that would bring them to jobs in the Texas Medical Center. The commuter line would begin at Fannin South, the southern end of the Main Street line, and continue to the Fort Bend County Line at Beltway 8.

The HCC Scarcella, Greenbriar, Stafford and Applied Science and Technology Centers all fall in between US-90 and US-59. The proposed commuter rail line would not currently extend to these campuses. The current line would stop at the Beltway. However, these campuses could be accessed by shuttle or bus from the commuter line which could carry potential students from the Bellaire area or Pearland.

Light Rail

The following lines are anticipated to be opened by 2012 as part of the METRO Solutions transit system expansion.

LINE NAME	DISTANCE	ROUTE
University/Orange Line	11.3 mi (18.2 km)	Hillcroft Transit Center to the Eastwood Transit Center
Uptown/Pink Line	4.7 mi (7.6 km)	Southwest corner of US 59 South/I-610 West interchange to the Northwest Transit Center

Table 15: Metropolitan Transit Authority of Harris County

The current plans for proposed METRO light rail lines reveal the possibility of serious inter-connectivity between certain campuses.

The Alief campus may be accessed by rail in the future, but at the present time plans are to stop the Westpark section of the University Corridor at the Hillcroft Transit Station. The Gulfton and West Loop campuses fall just south of the University Corridor, but additional shuttle or bus access to these campuses from the rail line could have a significant impact on students using mass transit to access these campuses. The Scarcella, Greenbriar, Stafford and Applied Science and Technology Center are not near proposed METRO light rail lines. The South Campus also does not fall near a proposed METRO light rail line.

1.2.2 Distance Education

As online learning becomes more available and more attractive to students, increased enrollment in online classes will have an impact on the need and design of future facilities. It is important to note that although much of online learning is done without the use of a traditional classroom environment, preliminary research shows that students will continue to desire face-to-face interaction with faculty and other students, they will also use testing facilities and visit the campuses for administrative services. Matching the ease with which students can access courses and services online and in the physical space will present a number of challenges and opportunities in terms of campus planning.

A recent survey published by the Instructional Technology Council in March of 2010 on Distance Education showed that from Fall 2007 to Fall 2008 (the most recent full year of available data) campuses reported a 22% increase for distance education enrollment while on-campus enrollment for the same year only reported a 2% increase nationally in enrollment. Another study conducted by the Sloan Foundation reported a 17% growth in distance learning enrollments while on-campus enrollment only increased by 1.5% (Allen & Seaman, January 2010). The Sloan Foundation study reports that over one-quarter of all higher education students are now taking at least one online course. There has been much speculation about when this growth will plateau, but it is expected to continue for the near future.

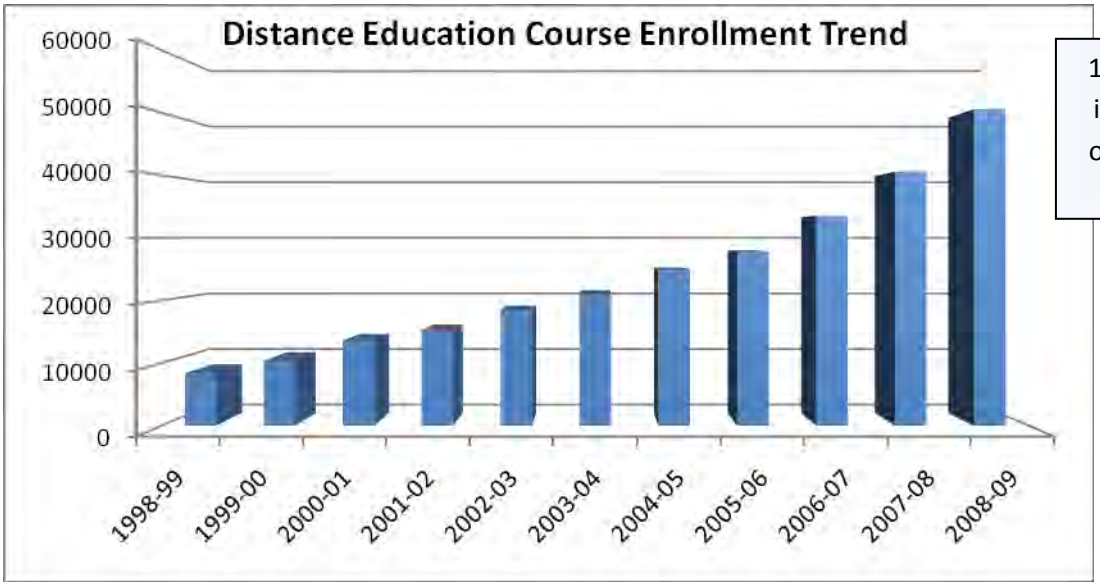


Chart 2: HCCS Distance Education Records, 1998 to 2003, HCC OIR DataMart Files, Fall 2003 to Summer 2004; End of Term 2005 & 2009

HCC distance education trends follow this same national movement with increasing numbers of students enrolling in distance education courses. The undisputed growth in online learning will impact facility utilization therefore it is important to maintain accurate utilization records to determine the need for new facilities. In addition to determining need, the composition of facilities will also be impacted as online courses currently require some testing at on-site testing centers, students continue to seek administrative services on campus as well as gather for study groups or to socialize.

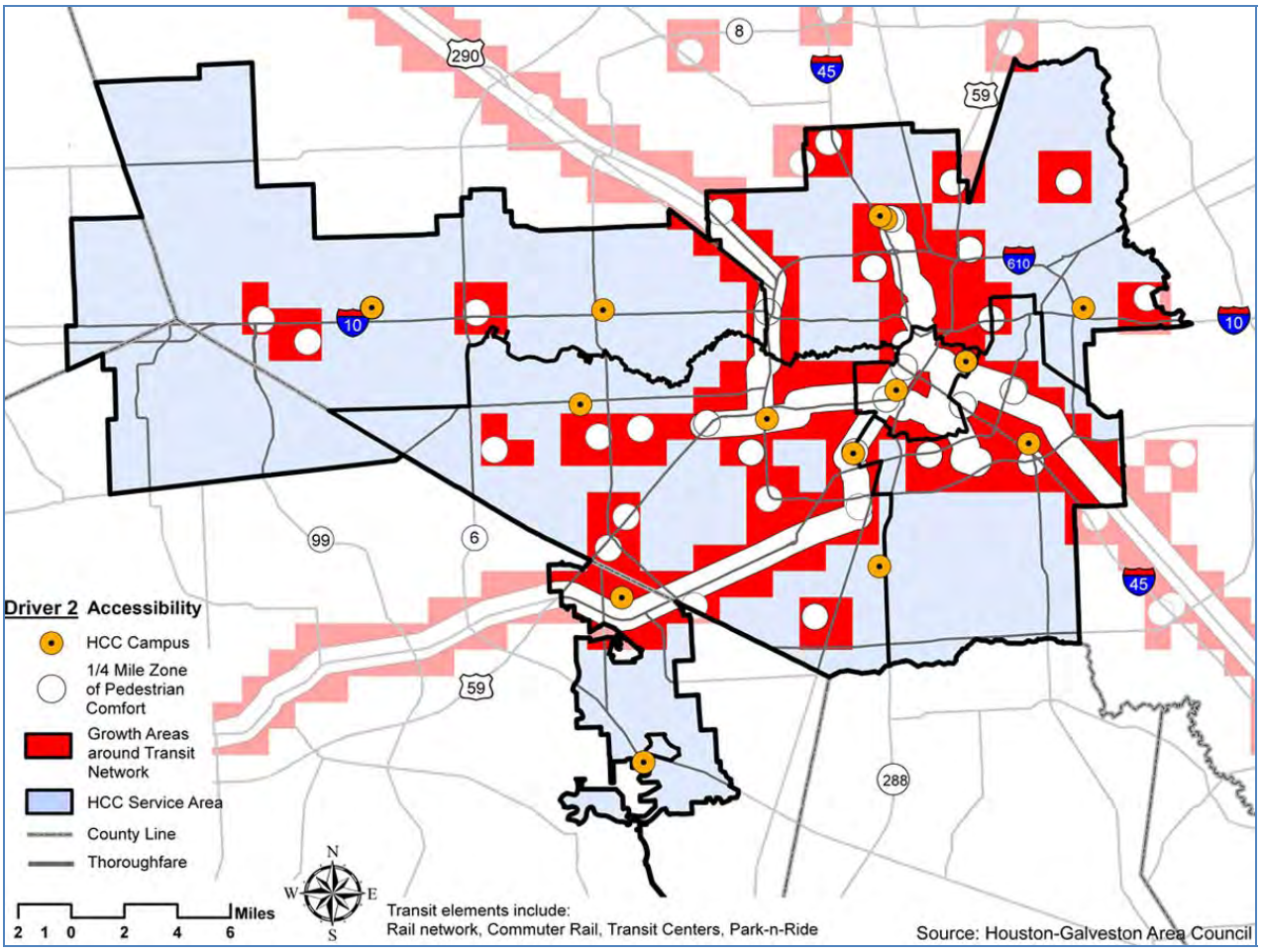
Recommended utilization and capacity studies will help to further define how existing space is being utilized and how to optimize it. By combining various statistics, these reports should help to forecast the need for new facilities as well as help to define their composition to best address the needs of the growing population of online students. The role of technology as it applies to adequately developing the facilities for this purpose should be a particular focus within the proposed studies.

1.2.3 Summary of Accessibility – Driver 2

Accessibility takes into account the ease with which people can take advantage of HCC services and the degree of convenience or difficulty students experience utilizing facilities. Accessibility to transit hubs and employment centers will become increasingly important as the Houston area continues to expand, the commuter rail and light rail networks are increased and HCC attracts more out-of-district students.

As online learning becomes more available and more attractive to students, increased enrollment in online classes will have an impact on the need and design of future facilities. On-line students will also need to travel to various campuses from time to time for testing, study groups, attend events or to address administrative issues therefore transportation and overall accessibility will impact them as well as the traditional students.

Accessibility is a significant factor in enrollment and must therefore be considered in facility location. The map below outlines the existing transportation network i.e. park-n-ride lots, transit centers and light rail and commuter rail networks that is being planned along with a quarter mile buffer around those transportation elements. The resulting red areas on the map are the recommended locations for new facilities to be considered. A quarter mile buffer is a standard urban planning measurement as research has proven that individuals are more likely to take transit if the destination is located within buffer zone as the distance is considered walkable.



Map 8: Summary of Driver 2 impact on future HCC site selection

1.3 Enrollment Pipeline

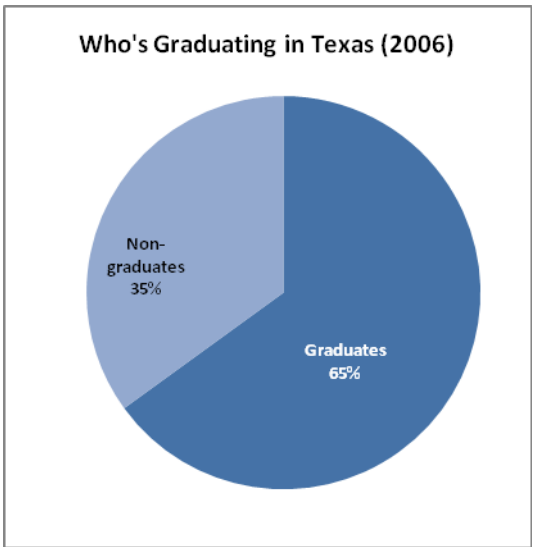
We have defined Driver 3 (Enrollment Pipeline) as the factors that identify and define the needs of the client, HCC students, specifically Graduation Rates and Industry Demands. These factors impact the development of future HCC facilities and significantly impact the make-up and needs of future student populations. Graduation rates and specific educational needs of incoming students are balanced with the employment needs of the Houston area industries and the skill sets they require when seeking new employees. Competition is also considered as HCC must compete with nine local community colleges to attract students.

1.3.1 Graduation Rates

The following statistics on high school graduation and college attendance come from Early College High School Initiative – started in 2002.

- Young people from the middle-class and wealthy families are almost five times more likely to earn a two- or four-year college degree than those from low-income families.
- For every 100 low-income students who start high school, only 65 will get a high school diploma and only 45 will enroll in college. Only 11 will complete a postsecondary degree. *(*Source: JFF analysis of data from the National Educational Longitudinal Study for students from the lowest-income SES quintile. The period of time measured includes outcomes from students' entry as ninth graders in 1988 to the year 2000.)
- Nearly half of US African-American students and 40% of Latino students attend high schools in which graduation from high school is not the norm. In the nation's 900 to 1,000 urban "dropout factories," completing high school is a 50:50 proposition at best. (*Source: Robert Balfanz and Nettie Legters. 2004. Locating the Dropout Crisis—Which High Schools Produce the Nation's Dropouts? Where Are They Located? Who Attends Them? Baltimore: Johns Hopkins University.)*[1]

Roughly 65% Texas students are graduating from high school according to Editorial Projects in Education and Research Center. The charts below demonstrate this statistic along with graduation rates for all seven of the Independent School Districts within the HCC service area. These differences in graduation rates show differences in the educational needs of students in these areas. Areas with higher numbers of students not graduating from high school will need more remedial courses and GED certification programs. Alternative graduation programs should also be emphasized. Students in these areas may also be geared towards early high school graduation programs.



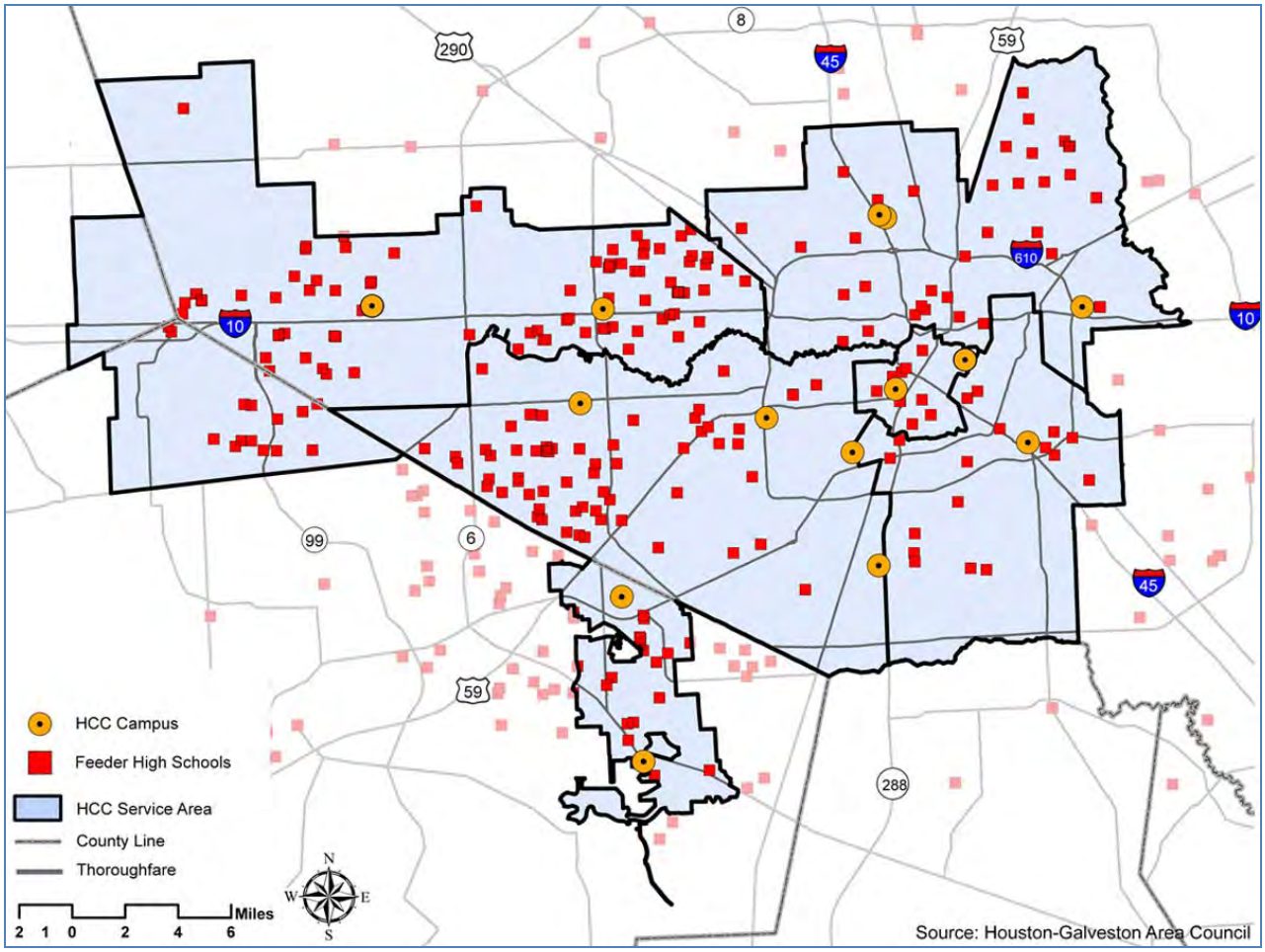
GRADUATION RATES (2006)			
ISD	ISD AVG	STATE AVG	NATIONAL AVG
Houston	42.8%	65%	68.6%
Stafford	64.1%		
Fort Bend	78.6%		
Katy	87.6%		
Spring Branch	62.3%		
Alief	44.6%		
North Forest	40.9%		

[1] http://www.earlycolleges.org/overview.html

Chart 3, Table 16: Graduation Rates - Sources: ISD information comes from each ISD noted. State Average comes from the Alliance for Excellent Education. National Average comes from the National Center for Higher Education Management Systems.

Graduation rates are seen as a fundamental indicator of school success. Almost 90% of the fastest-growing and highest-paying jobs require some postsecondary education. Having a high school diploma and the skills to succeed in college and the workplace are essential. Low-performing schools that fall within the HCC service area should be noted as students from these schools may be excellent candidates for HCC workforce development outreach and early high school graduation programs.

Identifying the ISDs with lower graduation rates and having future campus locations around those school districts with the offering of relevant coursework that supports high school education will play a key role in long-term success of HCC system by strengthening the enrollment pipeline.



Map 9: Location of High Schools that feed HCC enrollment

The map above outlines the local high schools that are feeder schools into the HCC system from the ISDs referenced. Additional ISDs outside the immediate HCC service area may also be viable feeder schools.

Early College High School Programs

A study conducted by John Hopkins University and the Associated Press named 42 high schools in the Houston area that have an attrition rate of 40% or higher. Amongst these 42 schools, 26 were located in the HCC service area. In such cases, HCC's involvement in the early college high school program can make a difference in state high school attrition rates by encouraging students to stay in school and providing them with viable education options. The table below outlines specific schools within the HCC service area that are feeding the current Dual Credit Program.

FEEDER SCHOOLS FOR HCC'S DUAL CREDIT PROGRAM	
Northwest College	Katy and Spring Branch ISD school and HISD Westside HS

Table 17: Feeder Schools for Northwest College's Dual Credit Program

The early college high school program provides students the opportunity to receive a high school diploma and an associate's degree or up to two years of credit toward a bachelor's degree in the span of five years. Students take a mixture of high school and college classes in order to obtain their high school diploma and associate's degree. Each early college high school is a public school and is open to any resident in the school district. HCC operates six early high school programs throughout the Houston area. Early college high school classes also allow students to transfer credits to public universities in Texas and some private institutions. Available academic courses include English, History, Government, Biology and Economics.

Schools are designed so that low-income, first-generation college students, students learning English, minority students, and other under-represented students can benefit from programs where they can earn high school diplomas and associate degrees.

Early college high school classes are already being offered at several HCC campuses. For example, Spring Branch ISD students can attend classes at the HCC Spring Branch campus or at their high school.

1.3.2 Competition

HCC is not the only community college in the area that is looking at graduation rates, the need for GED classes and teaming with local ISDs to strengthen their enrollment pipeline with early college high school programs. The table below identifies some of these local colleges with basic comparisons on enrollment, tuition and student success as measured by the volume of degrees and certificates awarded in 2008-2009.

LOCAL COMMUNITY COLLEGE OFFERING ACADEMIC AND TECHNICAL CERTIFICATES AND DEGREES			
Community College	2009 Fall Enrollment	Tuition, Books and Fees	Degrees and Certificates awarded 2008-2009
Alvin Community College	5,189	$9,337	939
Blinn College	16,855	$12,521	1,253
Brazosport College	3,866	$11,300	208
College of the Mainland	3,916	$10,136	484
Galveston College	2,167	$11,794	373
Houston Community College	42,104	$11,522	3,577
Lee College	6,542	$15,570	1,420
Lone Star College System	55,491	$11,942	3,530
San Jacinto College District	30,449	$14,099	4,254
Wharton County Junior College	6,622	$12,015	675

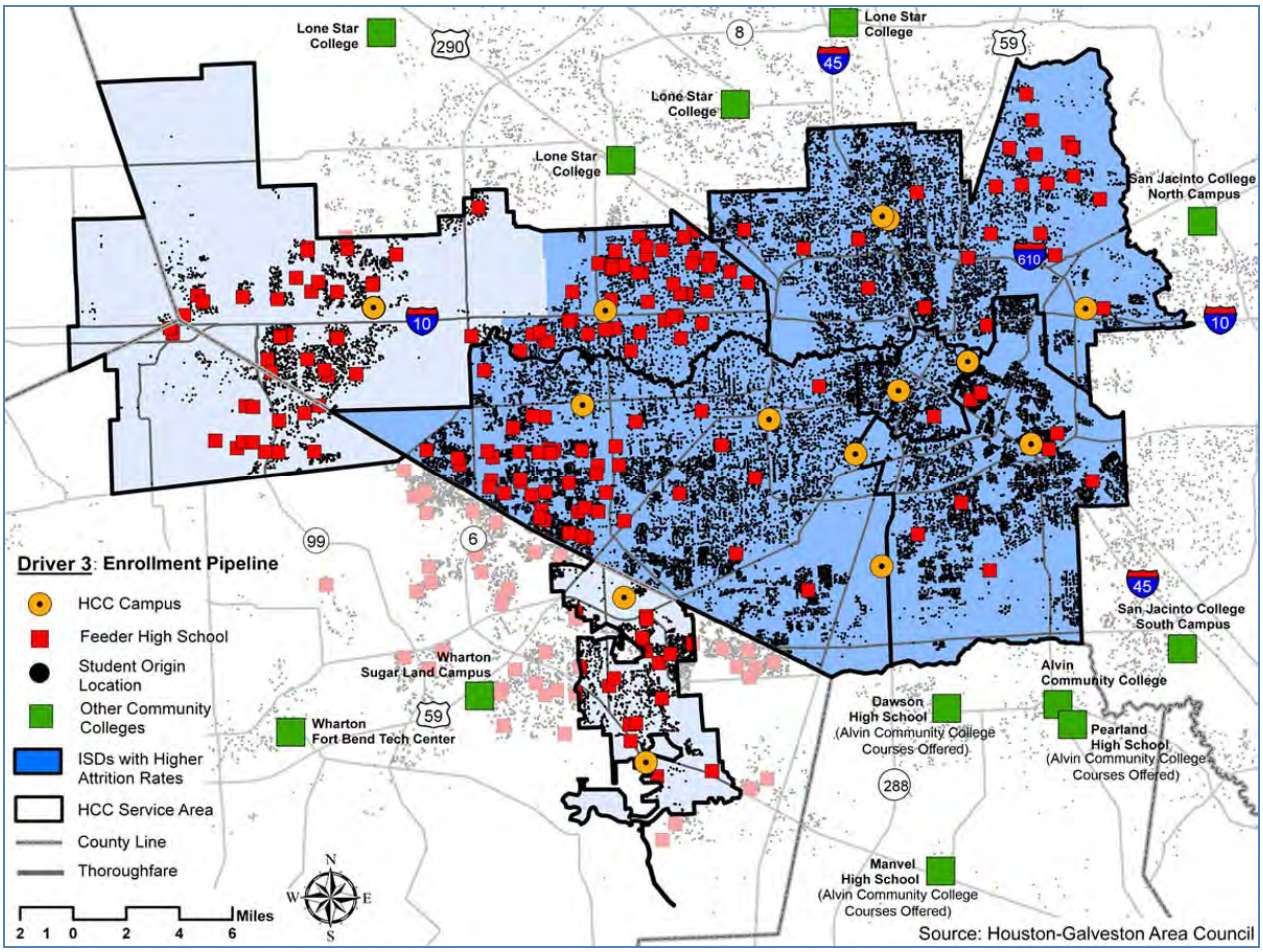
Table 18: College for all Texans, National Center for Education Statistics, Texas Association of Community Colleges

The individual colleges' programming will no doubt impact the students' selection of college. This topic will be addressed in the strategic plan. The prevue of the FMP is to factor in the impact of the location of the facilities themselves and what role that may play in attracting student enrollment. In addition to questions of programming, there is also the issue of benchmarking. An additional benchmarking study is recommended to identify colleges that are leading the nation in enrollment, engaging top level educators, attracting investment and promoting student success. These are the institutions of higher education that are also leaders in developing distance education programs and developing a network of well maintained campuses – in short they provide their students with accessibility options.

In Driver 2, Accessibility, we have already determined that for many students the cost of commuting is an important factor in deciding whether or not to attend higher education classes. With increased travel times expected, accessibility issues will be an even greater concern as traffic changes occur. Students will increasingly need to access classes near where they work and live especially during peak commute hours.

The dot density map on the following page shows the outline of the HCC service area along with current campus locations, that of the local competition and the concentration of HCC students represented by their home address. This map highlights the proximity of students to the HCC campuses and the number of students that come from outside the HCC service area. Approximately 80% of HCC's student population lives in-district while 20% of students live outside the HCC service area. It is important to note, there are additional locations for the local community colleges which fall outside of the map boundaries and these colleges are continuously seeking ways to grow – just like HCC. It is also interesting to note that many of

the competitor locations are in high growth areas like Tomball, Sugar Land, and Pearland. Several locations are also in the



Map 10: Competition Locations

1.3.3 Industry Demands

The need and direction of local workforce development will have a significant effect on Houston Community College as the skill set of the existing labor pool must change to accommodate demand. The City of Houston compiles jobs data using US Census Bureau statistics (from the 2000 US Census and the 2009 forecast) to compile local industry statistics. These statistics are broken down in the chart below to show the Top Industries for each of the HCC campus areas. Major trends include an increase in jobs for the health care industry and construction (which has recently fallen off due to economic conditions) , both of which saw significant increases in jobs in every HCC service area from 2000 to 2009. Industry losses were seen in Manufacturing, Wholesale Trade, Information, and Utilities in every HCC District.

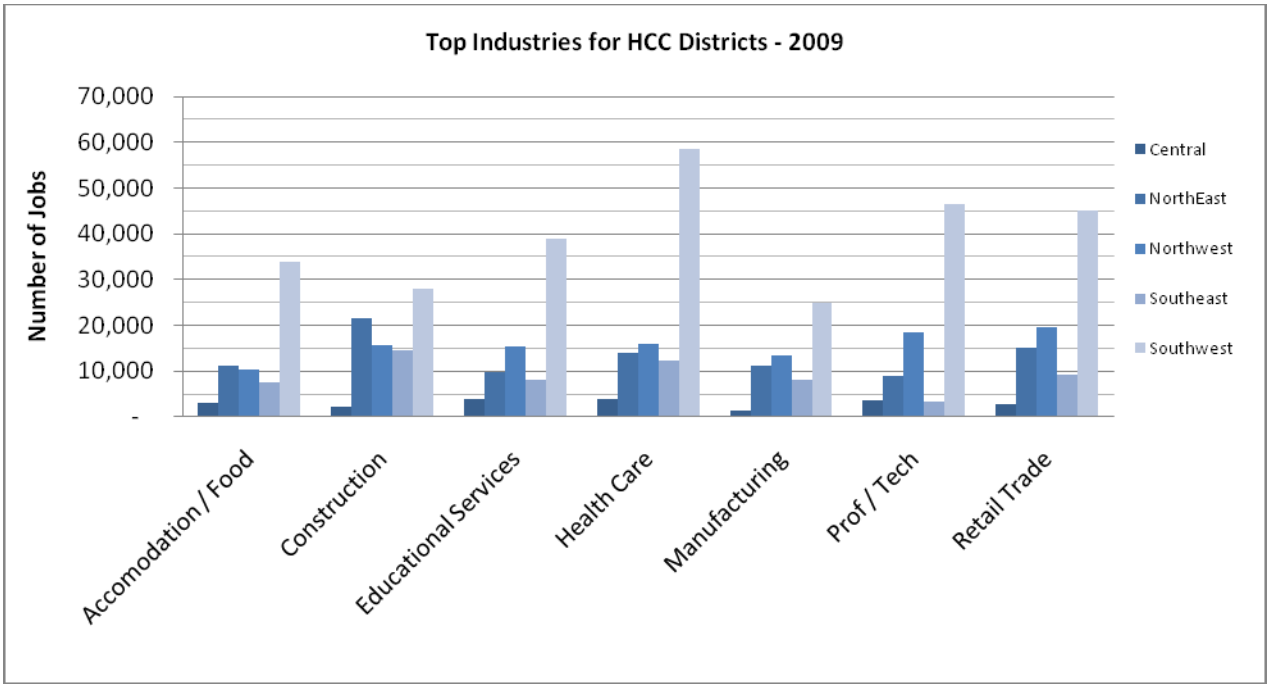


Chart 4: Top Industries for HCC Districts

Community College class offerings must change to accommodate the demands of the existing labor pool in order to fully address the shifting skill sets required in the local labor force. It is important to track the growth of specific industries in the Houston region and their attendant labor needs. Collecting current data and leveraging industry partnerships will be important for input and can help forecast future workforce needs.

Community colleges generate $276 million per year in intangible benefits associated with increased rates of higher education, including improved health, reduced unemployment, crime, and welfare spending. (HCC Foundation)[2] Career technical programs are "essential to the state's effort to reduce dropout rates and to meet employer demand for current and future jobs, many of which do not require a bachelor's degree."[3] For a strong and productive workforce, strong educational skills will be imperative. Texas must focus on efforts to improve graduation rates and to provide workforce specific training to its population.[4]

Despite a nation-wide economic downturn, Texas' economy has remained relatively strong and business leaders continue to see Texas as being a strong location for business development. CEOs have ranked

[2] http://www.hccsfoundation.org/Page.aspx?pid=261
[3] Advancing Texas, Strategic Plan for the Texas Workforce System, [FY 2010-FY2015], Texas Workforce Investment Council, Austin, Texas, 2009
[4] Texas Workforce Investment Council, *Texas Index* 2007.

Texas as the top state for job growth for the fourth year in a row.[5] Last year, Houston ranked in the top five for Best Cities for Jobs ranking conducted by Forbes magazine.[6] Understanding the local job market, following industry demands and offering relevant courses at future locations will help drive enrollment.

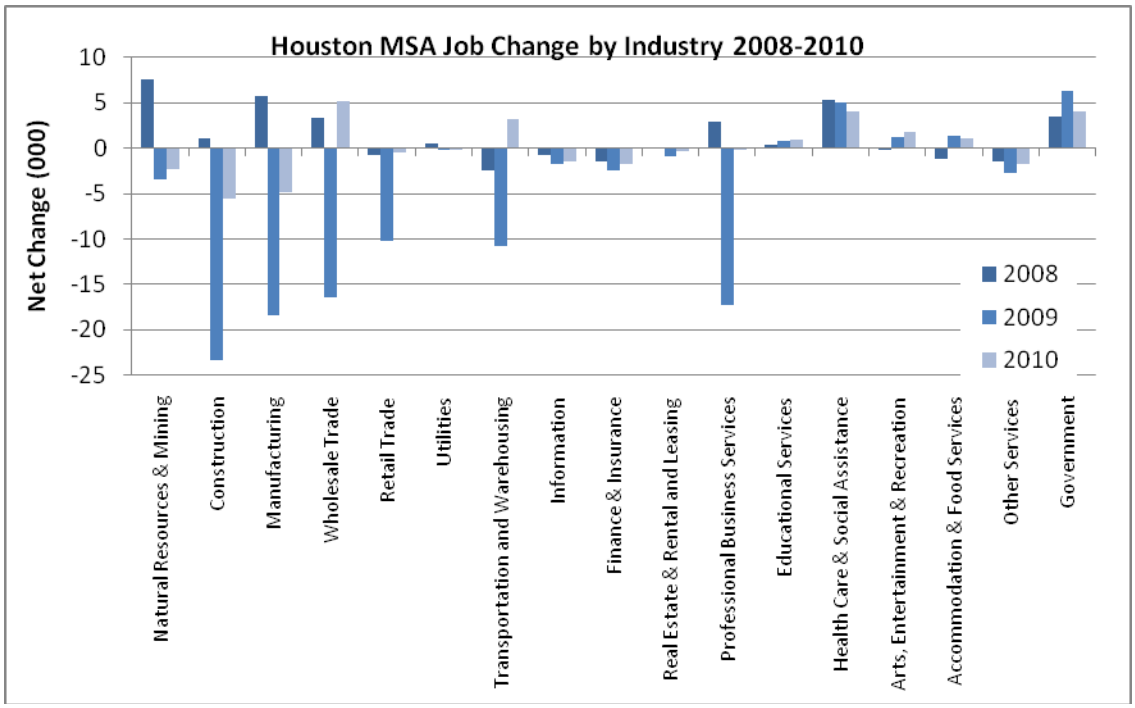


Chart 5: Houston MSA Job Change by Industry 2008-2010 – Greater Houston Partnership (GHP)

The chart above shows the most recent change in employment statistics while the chart below offers a forecast of employment through 2016. Tracking the current and future industry demands will help to: Identify partnership opportunities, required programming and assist in facility planning.

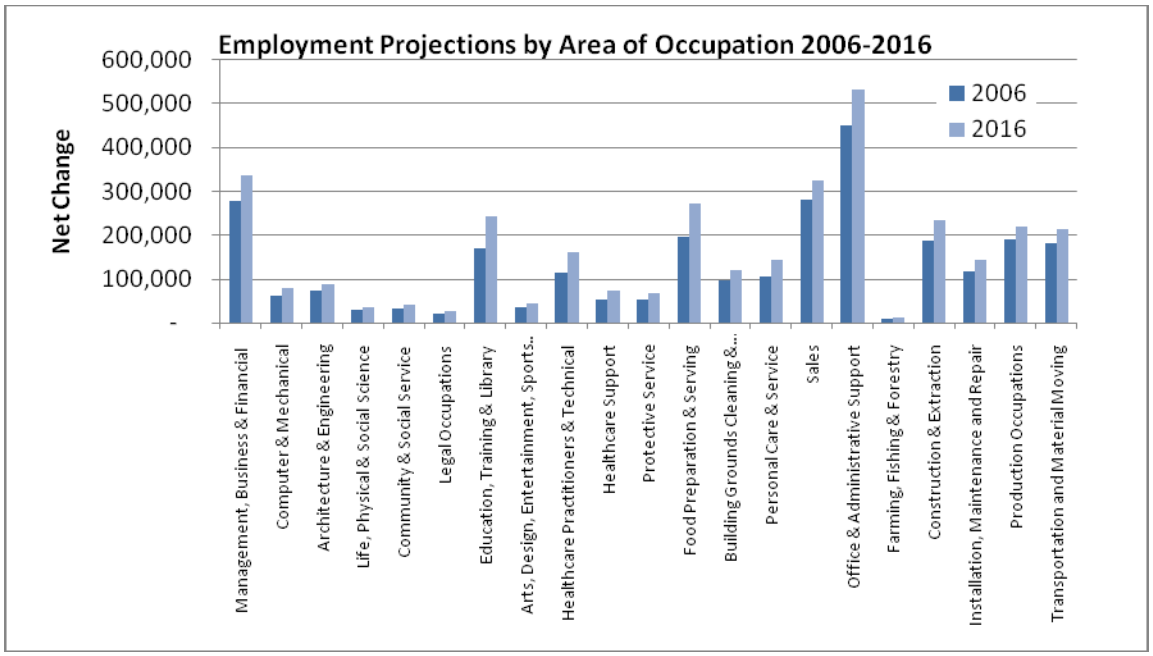
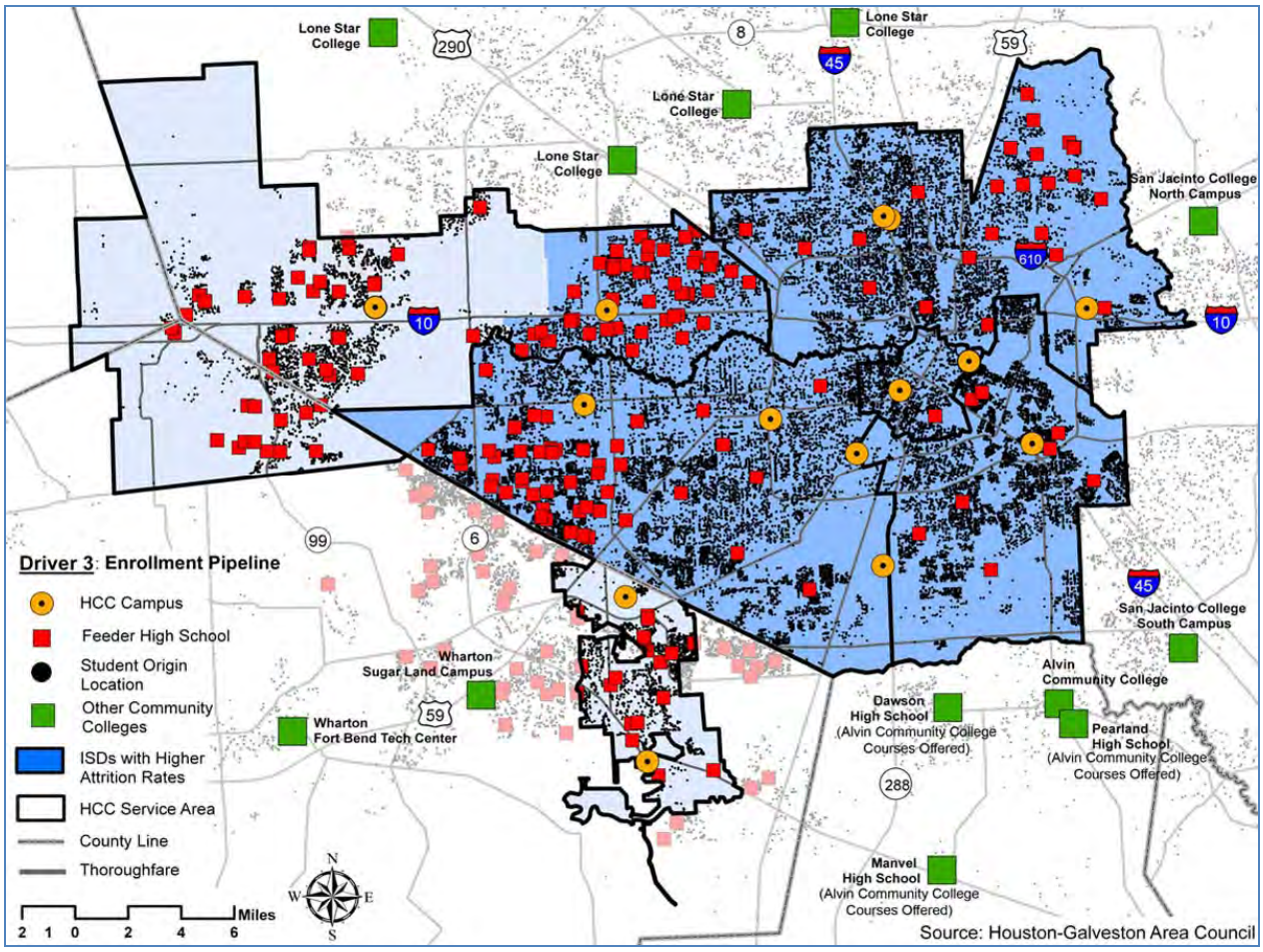


Chart 6: Employment Projections by Area of Occupation 2006-2016 - GHP

[5] Chief Executive Magazine, January/February 2009.
[6] Forbes.com, April 14, 2009.

1.3.4 Summary of Enrollment Pipeline – Driver 3

HCC has been successful in creating a pipeline from area high schools and has been innovative in creating student retention programs to ensure student success rates. The map below outlines the local high schools that are feeder schools into the HCC system from the ISDs referenced. Additional ISDs outside the immediate HCC service area may also be viable feeder schools.



Map 11: Summary of Driver 3 impact on future HCC site selection

1.4 Summary of Drivers

The location of future facilities is critical to the successful delivery of HCC services. The FMP plays an integral role in the overall planning process by providing a guideline for how to evaluate and best identify prime facilities locations. The map below is a compilation of highest growth areas for each of the three main drivers identified in this study and outlined in the figure at right.

Locating facilities in areas with the highest growth increases the potential utilization of the facility which also implies increased enrollment. As the map below highlights, growth in the greater Houston area through 2035 will be significant and provides HCC with many choices for expansion. Supplemental studies will help to determine facility composition and timing of construction. This information will feed the bond package preparation process and provide useful support to the final development of VISION 2035.

The map was compiled by developing a cumulative index of all three driver summary maps. Because expansion of current facilities will be largely determined by future studies already outlined in this report, a 2-mile buffer was added around each existing facility.

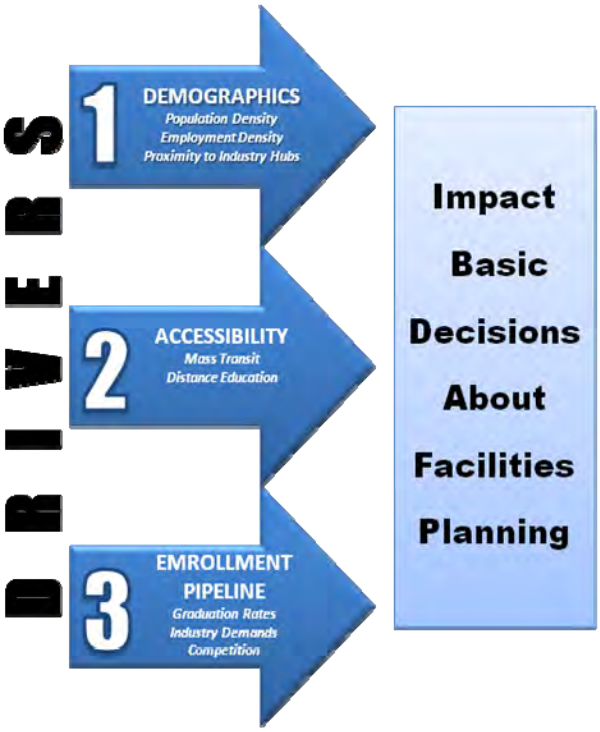
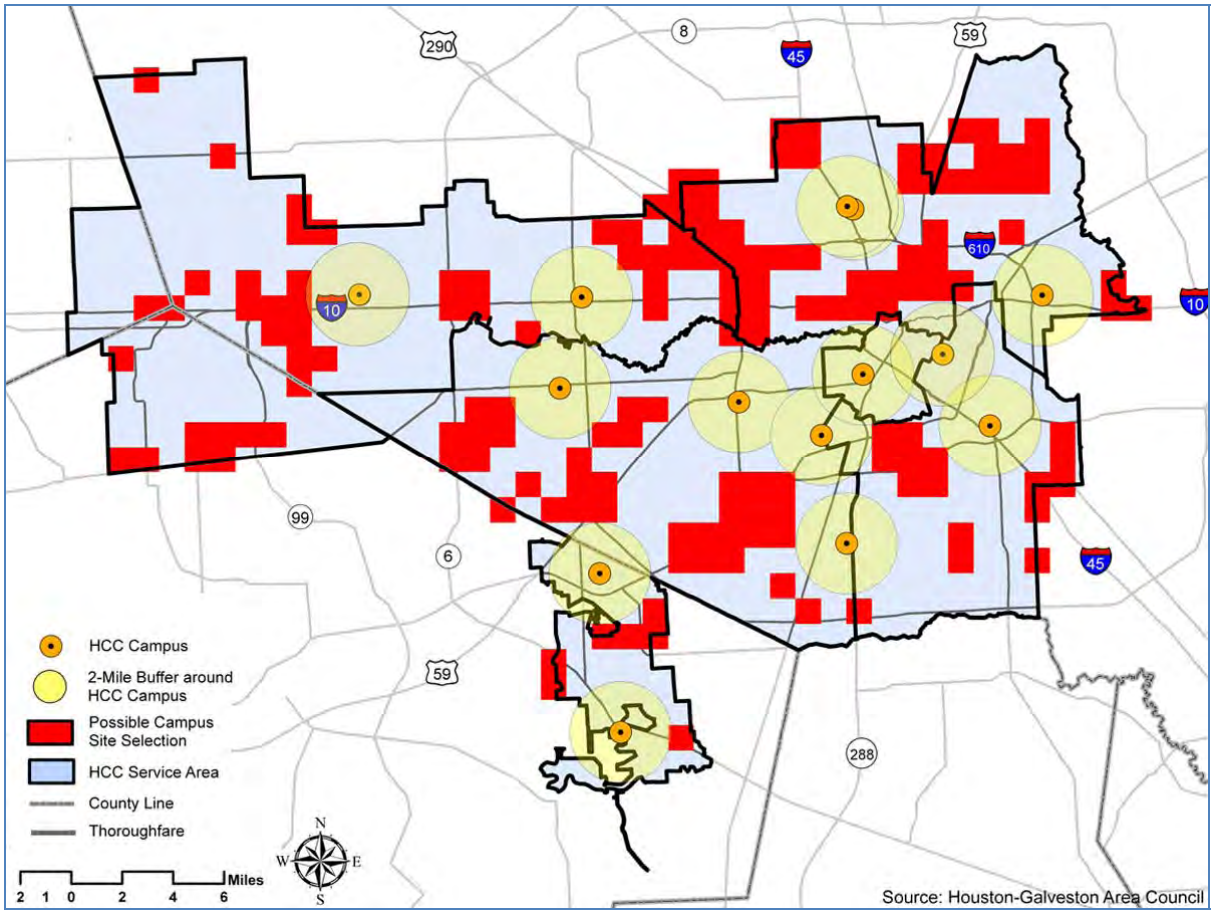


Figure ?: Facility Location Drivers



Map 12: Summary of all three Drivers impact on future Southwest College site selection

The resulting composite map identifies the following areas that, under the given criteria, suggest the optimum growth potential for future HCC locations:

- **Southwest College** - Central Southwest area (SH288 and Beltway 8 junction), around US-90 corridor connecting Westbury, Pine Meadow Court and Missouri City, around US-59 corridor connecting Meadows Place, Westwood and Sharpstown, east of HWY 6 in the Alief area.