



RICE UNIVERSITY
**Shell Center for
Sustainability**

SUSTAINABLE DEVELOPMENT OF HOUSTON DISTRICTS:

The Health of the City

**EXECUTIVE
SUMMARY**

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RICE







Sustainable Development of Houston Districts: The Health of the City

by

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Executive Summary

In order for citizens, analysts and elected officials to successfully pursue the sustainable development of the City of Houston, a robust set of indicators are needed to identify those issues that are integral to sustainable development and measure progress toward managing those issues. Sustainable development indicators, by definition, are distinct from traditional performance metrics in that they are value laden with sustainability principles and themes and a growing sustainability knowledge base.

Sustainability principles and themes include: ensuring balance among the pillars of sustainability (social, economic and environmental awareness); comprehensiveness; reliability and validity, timeliness and sensitivity. The interconnectedness of the various systems of city development is also an important principle of sustainability. Many city departments today enhanced their erstwhile reporting instruments by including reference to sustainability and focusing on such accomplishments as energy savings. While energy savings is indeed important, it is but one factor in the comprehensive sustainable development of a place where people live and work. In fact, it can be stated that the pursuit of energy savings should be business as usual for efficient company, organization or city management and hence does not validate the need for sustainable development. Further, many companies that pursue energy savings do so for the monetary savings and not the environmental or social impact of energy production and consumption.

This document discusses several of the issues important for the sustainable development of Houston. It is organized by first outlining the big issues and topics relevant to the city by presenting them as Themes and Sub-Themes; then selecting indicators to define those themes; then identifying metrics to measure those indicators, and finally describing the metrics. Policy and programmatic recommendations to improve the indicators of sustainable development in Houston are included after each section. These recommendations are the result of three workshops convened on the campus of Rice University with experts and advocacy groups representing several different fields and agencies in Houston (see Appendix A).

Research here is intended to facilitate discussion and decision making for the sustainable development of the City of Houston. The City of Houston Council Districts were selected as the major units of analysis for this study for two primary reasons. First the Council Districts are the administrative boundaries lead by officials directly elected by the citizens of Houston to lead on the Houston City Council. Secondly the Council Districts represent the primary spatial mechanism, through which capital improvement funds are distributed annually throughout the city. On an annual basis, citizens have the capability to identify issues or projects they would like to have funded in their discreet districts; elected officials have the capability to advocate for projects they would like to have funded in their discreet districts; and city staff have the capability to identify projects that require funding for maintenance and development of the city. These three avenues represent the main forces influencing the sustainable development of the City of Houston. Since this document highlights the sustainable development of each district and compares development among the districts it may be used to demonstrate the degree of diversity among districts

in the City of Houston with regards to Sustainable Development. The reader should also note that within each district there may be several discreet neighborhoods of varied typology. This study will in all cases make reservations for prevailing trends and average patterns within each council district and where possible reference the degree of variability within each district.

This document primarily focuses on development in the year 2010. At that time the city was divided into 9 districts, A – I. Presently, as a result of redistricting 2 other districts were added J and K. Although J and K did not exist in 2010, they are used in this report owing to their extant status. Therefore the city is divided in all indicators according to 11 districts A – K. This was not an appropriate approach for the Capital Improvements Spending indicator, since the data was collected by district.

The study is primarily intended to assist citizens, staff analysts, and decision makers to address the question, ***'How are Houston districts developing with regards to sustainability?'***

This document is a follow up to *Houston Sustainability Indicators: A Comprehensive Development Review for Citizens, Analysts and Decision Makers* (King, 2012). That study was based on: allocation of the sustainability indicators according to the *Theme – Sub-theme* framework; systematic structure of indicators to achieve balance among the three pillars in sustainability; and data collection for 1990, 2000, and 2010. The first document in the series was *Measuring City Sustainability: Project Houston* (Blackburn, 2010). That document, the first in this series published by the Shell Center for Sustainability, was based on a student class review and selection of the most cited indicators of city sustainability in the country in 2010. The next document in this series will be a thematic study of select sustainability indicators in the City of Houston. Expected publication date is Fall 2013.



Table 1: Districts Rank Comparison: Snapshot of districts performance. Green to red indicates whether the high rank is good or poor according to sustainability.

Measure	Min	Houston Average	Max	Rank Legend											
				O	O	O	O	O	O	O	O	O	O	O	High Rank ←
Social Development															
PopGrowth	%	0.2	1.2	3.3	I	C	H	D	B	A	F	J	K	G	E
Graduation	%	47.4	77.7	95.6	J	I	D	B	K	H	C	A	F	G	E
Voting	%	3.6	7.0	13.3	F	J	A	I	H	B	E	K	D	G	C
Poverty	%	7.1	22.8	31.8	G	E	C	F	K	A	D	I	H	B	J
Pop per Health Center	#	3,966.0	10,497.3	47,017.9	D	B	H	I	J	C	K	A	F	E	G
HousingCost > 30%Income	%	24.1	29.6	33.6	E	C	G	A	I	H	J	D	K	B	F
Pop 1/4 mile to Parks	%	27.5	40.7	58.4	F	G	J	B	A	K	E	D	H	C	I
Pop in Food Deserts	%	12.2	36.0	60.3	G	C	F	I	J	A	H	D	E	K	B
Economic Development															
Unemployment	%	4.6	10.0	12.6	G	C	E	A	K	F	H	J	I	D	B
Primary Jobs	%	11.7	18.8	49.1	I	C	G	B	E	F	A	H	J	K	D
Median Household Income	\$	28,735.4	42,355.0	72,421.1	B	J	H	I	D	F	A	K	C	E	G
Housing 1/4 mile to Jobs	%	3.8	26.1	53.5	E	H	K	B	A	F	D	I	J	G	C
* CIP per capita	\$	602.0	968.8	1,358.9	A	F	G	E	B	J	K	H	C	I	D
Pop 1/4 mile to Bus Stops	%	10.4	68.5	99.8	E	A	F	K	D	B	G	I	C	H	J
Average TravelTime	#	19.9	25.5	28.7	C	G	D	H	I	E	A	J	K	F	B
Pop using Transit	%	1.7	4.9	8.3	E	G	A	C	F	I	K	B	H	D	J
Environmental Development															
** Air - Max AQI - Ozone	#	106.0	125.0	145.0	D	B	F	K	H	G	C	A	E	J	I
Water-Household (ac ft/y)	#	12,095.0	16,465.0	22,244.0	H	I	J	D	B	K	A	F	E	G	C
Flooding-Pop in FloodZone	#	9,270.0	32,566.0	61,003.0	G	I	H	D	E	K	A	B	C	J	F
Land - Med-Low Develop	%	27.9	46.0	65.6	E	F	A	B	J	I	D	K	H	G	C
Land Use Mix (index)	#	2,118.1	2,615.0	5,739.0	B	E	A	H	I	D	K	F	C	G	J
Land - Commercial	%	1.9	10.0	41.8	G	E	C	D	K	J	H	A	F	B	I
Land - MultiFamily	%	7.6	41.0	74.9	H	I	B	E	A	D	K	F	C	G	J
Land - SingleFamily	%	6.4	16.0	35.9	J	F	A	B	I	D	C	K	E	G	H

* Districts J and K were assigned the average for the entire city.

** Districts C, G and H assigned city average since no monitor in those areas met federal regs.

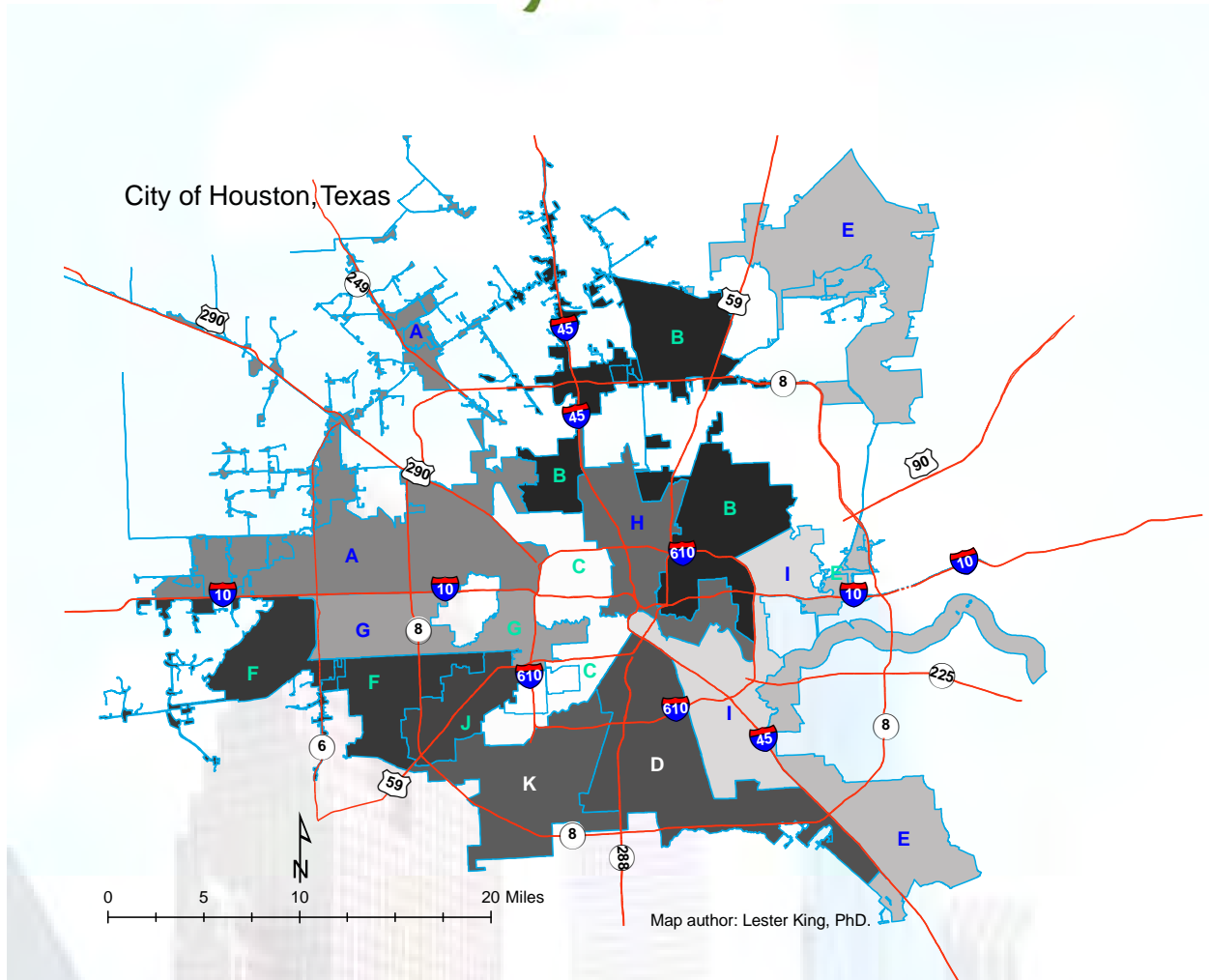


Table 1 shows a comparison of the 11 Districts in the study across the major sustainability indicators chosen for this report. Districts are described first by the numerical values of minimum performance, city average and then maximum performance. Then the districts are rank ordered from left to right according to minimum to maximum performance. In some cases the minimum performance among the districts is actually the better (high) rank according to sustainability and in some cases the minimum performance is the lowest rank. Therefore the color gradation codes of green to yellow to red was meant to illustrate the sustainability performance rank of better ranking to city average to low ranking on the sustainability indicators across the 11 districts. Additionally, for those limited by greyscale printers, the lower ranking districts were depicted in a smaller font complete with white text on the darker red color bands.

Further research is needed to determine whether there is a pattern in any subset of districts, which perform overall either better than other districts or worse than other districts according to sustainability. Research also needs to be conducted on the relative importance of the indicators chosen to determine if the initial question is valid. The reader should note that the sustainability indicators effort is not meant to establish an index and so districts will not be ranked with a single number across all of the indicators. That said, the visual inspection of the ranking (as depicted in Table 1) to determine



whether some districts fall more often than others in either the better or lower ranks according to the indicators, is a valid use of the data presented in this research. Some of those findings are briefly presented below.

District A – Ranked among the average performers in the social development indicators 5 times; ranked among the low performers in the economic development indicators 4 times; and ranked among the average performers in the environmental development indicators 5 times. Overall District A performed at an average level on 13 of the 24 indicators when compared to other districts in the city and performed at a high level on 4 of the 24 indicators. District A has the most manufacturing jobs in the city.

District B – Ranked among the low performers in the social development indicators 5 times; ranked among the low performers in the economic development indicators 5 times; and ranked among the better and average performers in the environmental development indicators 3 times. Overall District B performed at a low level on 12 of the 24 indicators when compared to other districts in the city and performed at a high level on 5 of the 24 indicators. Almost 1 in 3 persons in District B live in poverty (31%).

District C – Ranked among the high performers in the social development indicators 5 times; ranked among the high performers in the economic development indicators 5 times; and ranked among the low performers in the environmental development indicators 6 times. Overall District C performed at a high level on 11 of the 24 indicators when compared to other districts in the city but performed at a low level on 9 of the 24 indicators. District C is strong on the socio-economic indicators in this report.

District D – Ranked among the low performers in the social development indicators 5 times; ranked among the high performers in the economic development indicators 5 times; and ranked among the high and average performers in the environmental development indicators 3 times respectively. Overall District D performed at a low level on 10 of the 24 indicators when compared to other districts in the city. District D performed at a high level on 9 of the 24 indicators. The district contains many persons in poverty with unemployment above the city average. It also contains many jobs, but its inhabitants are not obtaining the education and training needed to fill these jobs.

District E – Ranked among the high performers in the social development indicators 4 times; ranked among the low performers in the economic development indicators 5 times; and ranked among the low performers in the environmental development indicators 5 times. Overall District E performed at a low level on 12 of the 24 indicators when compared to other districts in the city and performed at a high level on 8 of the 24 indicators. District E has poor access to public transportation.

District F – Ranked among the low performers in the social development indicators 4 times; ranked among the low performers in the economic development indicators 6 times; and ranked among the high and average performers in the environmental development indicators 3 times respectively. Overall District F performed at a low level on 12 of the 24 indicators when compared to other districts in the city but performed at a high level on 6 of the 24 indicators. One in three households in District F have housing affordability problems.



District G – Ranked among the high performers in the social development indicators 6 times; ranked among the high performers in the economic development indicators 4 times; and ranked among the low performers in the environmental development indicators 5 times. Overall District G performed at a high level on 12 of the 24 indicators when compared to other districts in the city but performed at a low level on 10 of the 24 indicators. This is the most affluent district in the city.

District H – Ranked among the average performers in the social development indicators 5 times; ranked among the high and average performers in the economic development indicators 3 times respectively; and ranked among the low performers in the environmental development indicators 4 times. Overall District H performed at an average level on 9 of the 24 indicators when compared to other districts in the city but performed at a high level on 7 of the 24 indicators. District H is 70% Hispanic.

District I – Ranked among the low performers in the social development indicators 4 times; ranked among the average performers in the economic development indicators 4 times; and ranked among the high and low performers in the environmental development indicators 3 times. Overall District I performed at a low level on 9 of the 24 indicators when compared to other districts in the city but performed at a high level on 8 of the 24 indicators. District I has the highest percentage of Hispanic persons with 80%.

District J – Ranked among the low performers in the social development indicators 5 times; ranked among the average performers in the economic development indicators 4 times; and ranked among the low performers in the environmental development indicators 4 times. Overall District J performed at a low level on 11 of the 24 indicators when compared to other districts in the city but performed at a high level on 6 of the 24 indicators. Critical indicators such as high poverty and low incomes affect this district.

District K – Ranked among the low performers in the social development indicators 5 times; ranked among the average performers in the economic development indicators 4 times; and ranked among the average and low performers in the environmental development indicators 4 times. Overall District K performed at a low level on 11 of the 24 indicators when compared to other districts in the city but performed at a high level on 4 of the 24 indicators. District K has the lowest number of jobs in the city. As a result of residents having to travel to other districts for work, a lot of traffic and associated emissions are generated by residents from this district.

Details for each sustainability indicator and district are presented in the report, which is concluded by a section presenting further overall findings.





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**Sustainable Development
of Houston Districts:**

**A Sustainability
Indicators Study**

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