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16. Abstract This study examines changes in the fiscal health of select Texas cities and counties from 1972 to 1992 and the relationship of those changes to the ability of local transportation agencies to maintain local roads and streets. The fiscal health of two-thirds of the cities and counties in our group improved over the period in question; however, it has not translated into adequate spending required to maintain local roads and streets in an acceptable condition. The authors found that declining fiscal health was accompanied by decreases in local road and street maintenance expenditures, and that these decreases were statistically related to a deterioration of locally maintained bridges and structures. The report also includes forecasts of fiscal health and local road and street spending for 1995 and 2000. The report concludes with some policy recommendations with respect to changes that may be required over the next decade in the manner TxDOT targets state aid to local transportation departments and metropolitan planning organizations (MPOs).					
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**AN ASSESSMENT OF THE FISCAL CAPACITY OF TEXAS CITIES  
AND COUNTIES AND THEIR ABILITY TO MEET LOCAL STREET  
CONSTRUCTION AND MAINTENANCE NEEDS  
THROUGH THE YEAR 2000**

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## **IMPLEMENTATION STATEMENT**

This study provides the Texas Department of Transportation with a historical view of trends in the fiscal health of Texas' cities and counties for the period 1972-1992. The report gives an insight into the demographic and economic changes which have swept Texas cities and counties during this time. It examines the effects of those trends on local expenditures for road, street, and bridge maintenance and construction, and also on road, street, and bridge conditions. A forecast of long-range trends in fiscal health and local road and street expenditures is also included in the report. Finally, the study makes some policy recommendations with respect to changes that may be required over the next decade in the manner TxDOT targets state aid to local transportation departments and metropolitan planning organizations (MPOs).



## **DISCLAIMER**

The contents of this report reflect the views of the authors who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the Texas Department of Transportation or the Federal Highway Administration (FHWA). This report does not constitute a standard, specification, or regulation.

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## TABLE OF CONTENTS

List of Figures.....	xii
List of Tables.....	xiii
List of Acronyms.....	xx
Summary.....	xxi
1.0 Executive Summary.....	1
1.1 Findings: Demographic and Economic Changes in Texas Cities and Counties, 1972-1992.....	1
1.2 Findings: Changes in the Fiscal Health of Texas Cities and Counties, 1972-1992.....	3
1.3 Summary of Forecasts of FHI for Cities and Counties: 1995 and 2000.....	5
1.4 Findings: Relationship Between Changes in Fiscal Health, Local Road and Street Expenditures, and Road and Street Conditions in Texas Cities.....	6
1.5 Findings: Estimates and Forecasts of Under and Overspending on Roads and Streets by Texas Cities and Counties, 1972-1992, and 1995-2000.....	7
1.6 Summary of Policy Recommendations.....	8
2.0 Study Problem Statement.....	9
2.1 Background and Significance of Study.....	9
2.2 Study Objectives.....	12
2.3 Study Implementation.....	12
3.0 The Fiscal Health of Texas Cities and Counties.....	13
3.1 Defining Fiscal Health.....	13
3.2 The Structural Dimensions of Fiscal Health in Texas Cities and Counties: Demographics and Economics.....	13
3.2.1 Population Trends in Texas Cities and Counties: 1970- 1990.....	15
3.2.2 Economic Trends in Texas Cities and Counties, 1972-1992.....	22
3.2.3 Summary and Conclusions.....	36

3.2.4 Trends in Fiscal Health of Texas Cities and Counties, 1972-1992.....	39
3.2.5 Fiscal Health Forecasts for Texas Cities and Counties: 1995 and 2000.....	77
4.0 Correlating Fiscal Health, Local Road and Street Expenditures, and Local Road and Street Conditions.....	87
4.1 MSA City Transportation Spending Priorities and Measures of Roadway Spending: Evidence from Interviews.....	87
4.2 Fiscal Health as a Determinant of MSA City Road and Street Maintenance and Construction Expenditures .....	89
4.3 Road and Street Maintenance/Construction Expenditures as Determinants of MSA City Road and Street Conditions.....	93
4.3.1 Measures of Roadway Conditions.....	93
4.3.2 Description of Measures Chosen for Analysis and Rationale for Their Use.....	94
4.3.3 Regression Analyses of Effects of Road and Street Expenditures on Bridge Conditions.....	96
4.4 Summary of Findings: Fiscal Health, City Road and Street Expenditures, and City Bridge Conditions (as a Proxy for Road Conditions).....	98
4.5 Estimates of Non-Local Revenue Required to Maintain Local Streets and Roads in Acceptable Condition.....	100
4.5.1 Calculating Under and Overspending on Roads and Streets by Texas Cities and Counties.....	101
4.5.2 Summary: Estimated of Non-Local Revenue Required to Maintain Local Streets and Roads in Acceptable Condition- MSA Cities/Counties and Non-Metro Cities/Counties.....	106
5.0 Policy Recommendations.....	123
5.1 Recommendation 1: Correlate TxDot Aid Allocations with City and County Fiscal Health Scores and Estimated Levels of Under/Overspending.....	127
5.2 Recommendation 2: In Cooperation with MPOs, Maintain and Update the Data on Fiscal Health and Local Under/Overspending Every Two Years.....	128
5.3 Recommendation 3: Require All Jurisdictions that Receive TxDot Aid to Install a State-Standard Pavement Management System (PMS).....	128
5.4 Recommendation 4: For Non-Metro Jurisdictions with a Population of 10,000 or More that do not Receive Aid, Allocate Monies for Purchase and Installation of State-Standard PMS.....	129

5.5 Recommendation 5: Institute Decennial Census of Pavement Conditions in Metro and Non-Metro Jurisdictions using PMS Data.....	129
Appendix A: Tables on Resident Economic Health and City and County Economic Health.....	131
Appendix B: Tables on Pavement Management Systems, Survey Results, and Bridge Conditions.....	145
Appendix C: Tables on Fiscal Health, Street Expenditure Measures, and Bridge Conditions.....	157
Appendix D: Tables on Estimates of Non-Local Revenue Required to Maintain Local Streets and Roads.....	165
Appendix E: Calculating Standardized Fiscal Health.....	187
Appendix F: Interview Abstracts and Transcripts.....	201
Appendix G: Explanation of Regression Analysis Technique.....	369
References.....	375
Data Sources.....	377

## LIST OF FIGURES

Figure 3.1	The Relationship Between 1992 FHI Scores and 1970-1990 Population Change, Texas MSA Cities.....	70
Figure 3.2	The Relationship Between 1992 FHI Scores and 1972-1992 Median Percent Change in Per Capita Income.....	71

## LIST OF TABLES

<b>Table</b>		
3-1	Population Trends, Texas MSA Cities, 1970-1990.....	16
3-2	Population Trends, Texas MSA Counties, 1970-1990.....	18
3-3	Population Trends, Texas Non-Metro Cities: 1970-1990.....	19
3-4	Population Trends, Texas Non-Metro Counties: 1970-1990.....	21
3-5	Best and Worst Resident Economic Health, 1972 and 1992, Texas MSA Cities	28
3-6	Private Employment per 100 Residents (PEP100), Best and Worst MSA Cities, 1972 and 1992.....	33
3-7A1	Fiscal Health Indexes, Texas MSA Cities, Ranked in Descending Order, 1972, 1982, and 1992.....	44
3-7A2	Normalized Fiscal Health Indexes, Texas MSA Cities, Ranked in Descending Order, 1972, 1982, and 1992.....	47
3-7A3	1972 and 1992 Standardized Fiscal Health Indexes, (Standardized using 1972 Median), MSA Cities, Ranked in Descending Order.....	49
3-8A1	Fiscal Health Indexes, Texas MSA Counties, Ranked in Descending Order, 1972, 1982, and 1992.....	52
3-8A2	Normalized Fiscal Health Indexes, Texas MSA Counties, Ranked in Descending Order, 1972, 1982, and 1992.....	54
3-8A3	1972 and 1992 Standardized Fiscal Health Indexes, (Standardized using 1972 Median), MSA Counties, Ranked in Descending Order.....	56

3-9A1	Fiscal Health Indexes, Texas Non-Metro Cities, Ranked in Descending Order, 1972, 1982, and 1992.....	57
3-9A2	Normalized Fiscal Health Indexes, Texas Non-Metro Cities, Ranked in Descending Order, 1972, 1982, and 1992.....	59
3-9A3	1972 and 1992 Standardized Fiscal Health Indexes, (Standardized using 1972 Median), Non-Metro Cities, Ranked in Descending Order.....	60
3-10A1	Fiscal Health Indexes, Texas Non-Metro Counties, Ranked in Descending Order, 1972, 1982, and 1992.....	62
3-10A2	Normalized Fiscal Health Indexes, Texas Non-Metro Counties, Ranked in Descending Order, 1972, 1982, and 1992.....	63
3-10A3	1972 and 1992 Standardized Fiscal Health Indexes, (Standardized using 1972 Median), Non-Metro Counties, Ranked in Descending Order.....	65
3-11	Relationship Between Standardized FHI, Population Change, and Per Capita Income Change, MSA Cities, Ranked by STD. FHI, in Descending Order.....	68
3-12	Relationship Between Standardized FHI, Population Change, and Per Capita Income Change, Non-Metro Cities, Ranked by STD. FHI, in Descending Order.....	72
3-13	Relationship Between Standardized FHI, Population Change, and Per Capita Income Change, MSA Counties, Ranked by STD. FHI, in Descending Order.....	74
3-14	Relationship Between Standardized FHI, Population Change, and Per Capita Income Change, Non-Metro Counties, Ranked by STD. FHI, in Descending Order.....	76
3-15	Forecasts of Standardized Fiscal Health Indexes, MSA Cities, 1995 and 2000 (Standardized Using 1972 Median), Ranked in Descending Order.....	78

3-16	Forecasts of Standardized Fiscal Health Indexes, Non-Metro Cities, 1995 and 2000 (Standardized Using 1972 Median), Ranked in Descending Order.....	80
3-17	Forecasts of Standardized Fiscal Health Indexes, MSA Counties, 1995 and 2000 (Standardized Using 1972 Median), Ranked in Descending Order.....	82
3-18	Forecasts of Standardized Fiscal Health Indexes, Non-Metro Counties, 1995 and 2000 (Standardized Using 1972 Median), Ranked in Descending Order	84
4-1	Regression Results- MSA City Road and Street Spending as a Function of City Fiscal Health.....	90
4-2	Regression Results- Bridge Conditions as a Function of City Road and Street Spending.....	97
4-3	Estimates of Shortfalls or Excesses in Road and Street Expenditures, MSA Cities, Ranked in Descending Order, 1972, 1982, and 1992.....	107
4-4	Estimates of Shortfalls or Excesses in Road and Street Expenditures, MSA Counties, Ranked in Descending Order, 1972, 1982, and 1992.....	110
4-5	Estimates of Shortfalls or Excesses in Road and Street Expenditures, Non-Metro Cities, Ranked in Descending Order, 1972, 1982, and 1992.....	111
4-6	Estimates of Shortfalls or Excesses in Road and Street Expenditures, Non-Metro Counties, Ranked in Descending Order, 1972, 1982, and 1992.....	112
4-7	Total Over and UnderSpending on Roads and Streets in Texas Cities and Counties, 1972, 1982, and 1992.....	114
4-8	Forecasts of Shortfalls or Excesses in Road and Street Expenditures, MSA Cities, Ranked in Descending Order, 1995 and 2000.....	115
4-9	Forecasts of Shortfalls or Excesses in Road and Street Expenditures, MSA Counties, Ranked in Descending Order, 1995 and 2000.....	117

4-10	Forecasts of Shortfalls or Excesses in Road and Street Expenditures, Non-Metro Cities, Ranked in Descending Order, 1995 and 2000.....	118
4-11	Forecasts of Shortfalls or Excesses in Road and Street Expenditures, Non-Metro Counties, Ranked in Descending Order, 1995 and 2000.....	120
4-12	Total Forecasted Over and Underspending on Roads and Streets in Texas Cities and Counties, 1995 and 2000.....	121
A-1	MSA Cities, Per Capita Income and Changes, 1972-1992.....	133
A-2	MSA Counties, Per Capita Income and Changes, 1972-1992.....	134
A-3	Non-Metro Cities, Per Capita Income and Changes, 1972-1992.....	135
A-4	Non-Metro Counties, Per Capita Income and Changes, 1972-1992.....	136
A-5	MSA Cities, PCI Levels and Real Change in PCI, 1972-1992.....	137
A-6	MSA Counties, PCI Levels and Real Change in PCI, 1972-1992.....	138
A-7	Non-Metro Cities, PCI Levels and Real Change in PCI, 1972-1992.....	139
A-8	Non-Metro Counties, PCI Levels and Real Change in PCI, 1972-1992.....	140
A-9	Private Employment per 100 Residents (PEP100), MSA Cities, 1972-1992.....	141
A-10	Private Employment Per 100 Residents (PEP100), MSA Counties, 1972-1992	142
A-11	Private Employment Per 100 Residents (PEP100), Non-Metro Cities, 1972-1992.....	143
A-12	Private Employment Per 100 Residents (PEP100), Non-Metro Counties, 1972-1992.....	144
B-1	Pavement Management Systems in MSA Cities.....	147



B-2	Pavement Management Systems in Non-Metro Cities.....	148
B-3	Texas Fiscal Capacity Study- Survey Results: Question 1.....	149
B-4	Texas Fiscal Capacity Study- Survey Results: Question 2.....	150
B-5	Texas Fiscal Capacity Study- Survey Results: Question 3.....	151
B-6	Texas Fiscal Capacity Study- Survey Results: Question 4.....	152
B-7	Texas Fiscal Capacity Study- Survey Results: Question 5.....	153
B-8	Condition of Bridges in MSA Cities, 1982.....	154
B-9	Condition of Bridges in MSA Cities, 1989.....	155
B-10	Condition of Bridges in MSA Cities, 1992.....	156
C-1	Fiscal Health and Per Capita Road And Street Expenditure Measures, MSA Cities, 1982.....	159
C-2	Fiscal Health and Per Capita Road And Street Expenditure Measures, MSA Cities, 1987.....	160
C-3	Fiscal Health and Per Capita Road And Street Expenditure Measures, MSA Cities, 1992.....	161
C-4	Road and Street Expenditures Per Road Kilometer and Bridge Condition Measures, MSA Cities, 1982.....	162
C-5	Road and Street Expenditures Per Road Kilometer and Bridge Condition Measures, MSA Cities, 1987.....	163
C-6	Road and Street Expenditures Per Road Kilometer and Bridge Condition Measures, MSA Cities, 1992.....	164

D-1	Estimates of Shortfalls or Excesses in MSA Cities' Road and Street Expenditure, 1972.....	167
D-2	Estimates of Shortfalls or Excesses in MSA Cities' Road and Street Expenditure, 1982.....	168
D-3	Estimates of Shortfalls or Excesses in MSA Cities' Road and Street Expenditure, 1992.....	169
D-4	Forecasts of Shortfalls or Excesses in MSA Cities' Road and Street Expenditure, 1995.....	170
D-5	Forecasts of Shortfalls or Excesses in MSA Cities' Road and Street Expenditure, 2000 .....	171
D-6	Estimates of Shortfalls or Excesses in MSA Counties' Road and Street Expenditure, 1972.....	172
D-7	Estimates of Shortfalls or Excesses in MSA Counties' Road and Street Expenditure, 1982.....	173
D-8	Estimates of Shortfalls or Excesses in MSA Counties' Road and Street Expenditure, 1992.....	174
D-9	Forecasts of Shortfalls or Excesses in MSA Counties' Road and Street Expenditure, 1995.....	175
D-10	Forecasts of Shortfalls or Excesses in MSA Counties' Road and Street Expenditure, 2000.....	176
D-11	Estimates of Shortfalls or Excesses in Non-Metro Cities' Road and Street Expenditure, 1972.....	177
D-12	Estimates of Shortfalls or Excesses in Non-Metro Cities' Road and Street Expenditure, 1982.....	178

D-13	Estimates of Shortfalls or Excesses in Non-Metro Cities' Road and Street Expenditure, 1992.....	179
D-14	Forecasts of Shortfalls or Excesses in Non-Metro Cities' Road and Street Expenditure, 1995.....	180
D-15	Forecasts of Shortfalls or Excesses in Non-Metro Cities' Road and Street Expenditure, 2000.....	181
D-16	Estimates of Shortfalls or Excesses in Non-Metro Counties' Road and Street Expenditure, 1972.....	182
D-17	Estimates of Shortfalls or Excesses in Non-Metro Counties' Road and Street Expenditure, 1982.....	183
D-18	Estimates of Shortfalls or Excesses in Non-Metro Counties' Road and Street Expenditure, 1992.....	184
D-19	Forecasts of Shortfalls or Excesses in Non-Metro Counties' Road and Street Expenditure, 1995.....	185
D-20	Forecasts of Shortfalls or Excesses in Non-Metro Counties' Road and Street Expenditure, 2000.....	186
E-1	Variables Included in Regressions used to Determine Cost Indexes for General, Fire, and Police Services.....	198

## LIST OF ACRONYMS

CMSA	Consolidated Metropolitan Statistical Area
DFW	Dallas/Fort Worth
FHI	Fiscal Health Index
ISTEA	Intermodal Surface Transportation Efficiency Act
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
PASS	Principal Arterials Street System
PCI	Per Capita Income
PEP100	Private Employment per 100 Residents
PMS	Pavement Management System
PMSA	Primary Metropolitan Statistical Area
REH	Resident Economic Health
RRC	Revenue Raising Capacity
SEN	Standardized Expenditure Need
STP	(Texas) Surface Transportation Program
VMT	Vehicle Miles Traveled

## SUMMARY

The study found that most of the cities and counties in our group had a growth in population between 1972-1992. It also found that resident economic health (REH), as measured by per-capita income, increased most rapidly in fast-growing suburban cities/counties, especially around the Dallas-Fort Worth area, in comparison to the central-core cities/counties. The cities and counties in the Rio Grande and border regions remained the poorest in terms of REH as well as fiscal health. The "rich" suburban cities/counties also had the highest level of growth in private employment as compared to the cities/counties in the Gulf Coast, Southeast, and border regions of the state.

The fiscal health of two-thirds of Texas' cities and counties improved over the period 1972-92. However, the "rich" suburban cities/counties stayed rich (had positive index values for Fiscal Health) while the "poor" cities/counties almost all stayed poor. The forecasts of FHI for 1995 and 2000 show a significant number of MSA and non-metro cities likely to experience a decline in their fiscal healths, while the MSA and non-metro counties are expected to show a strong improvement in 1995-2000.

The study did find a statistically significant and positive relationship between fiscal health and a city's road and street expenditure. A city with a positive fiscal health index (FHI) had the ability to spend more on maintaining its streets than did a city with a negative FHI. The authors also found a positive and significant relationship between a city's expenditure on its local roads and streets and the condition of its bridges, and by extension, its roads and streets.

The study also found that most cities and counties were not able to meet the expenses required to keep their roads and streets in an acceptable condition. There was an increase in the number of cities and counties who underspent between 1972-92, and this trend was expected to continue in 1995-2000.



## **1.0 EXECUTIVE SUMMARY**

### **1.1 FINDINGS: DEMOGRAPHIC AND ECONOMIC CHANGES IN TEXAS CITIES AND COUNTIES, 1972-1992 (DETAILS IN SECTIONS 3.2.1 AND 3.2.2)**

The fiscal health of Texas cities and counties depends to an important extent on structural--i.e., demographic and economic--factors that are generally outside the control of city council members, city managers, county commissioners, and the voting public. We saw several definitive demographic and economic trends in the data we analyzed.

**(1) Population Changes, 1970-1990:** Suburban cities in the Dallas-Fort Worth (DFW) metropolitan area and cities along the Mexican border had the fastest-growing populations in the state over the last two decades. Only two metropolitan cities (MSA cities) lost population from 1970 to 1990, while over a third of the non-metropolitan cities lost population over this period. The metro-area (MSA) counties in the suburban DFW area and Rio Grande Valley showed very strong population gains. The non-metro counties had a much more subdued increase in the number of their residents in comparison to their metro-area counterparts, with 20% of the non-metro counties experiencing a decline in their populations.

**(2) Levels and Changes in Resident Economic Health (PCI), 1972-1992:** From 1972 to 1992, resident economic health (REH)--as measured by per capita income--increased most rapidly in the fast-growing suburbs surrounding DFW. Resident economic health, however, declined in Southeast Texas and Gulf Coast communities dependent on the oil and gas industries. Overall, disparities in per capita income growth rates between DFW Consolidated Metropolitan Statistical Area (CMSA) cities and counties, oil-dependent jurisdictions, and communities in other regions of the state caused the economic health of the residents of many Texas cities and counties to fall relative to Metroplex localities. Despite relatively rapid population and per capita income growth, residents of the Mexican border cities in the Rio Grande Valley and Far West Texas remained the poorest in the state.

Among the non-metro cities in the top Quintile in 1972- Groves, Pampa, Borger, and Cleburne- all retained their position as the most prosperous in 1992 having the highest REH. The cities in the bottom Quintile 5 in 1972 - Seguin, Beeville, Uvalde, and Eagle Pass - continued to be the poorest rural cities in 1992. The increase in REH was higher, on average, for MSA cities as compared to the non-metro cities.

The MSA counties in the DFW CMSA showed impressive growth in REH both in absolute terms (percentage increase) and in relative terms (moved up Quintiles: see Table A-2). The poorest MSA counties in 1972 stayed the poorest in 1992, with five of them being along the Texas-Mexico border. The richest non-metro counties - Gray, Johnson, and Brazoria- home to the richest non-metro cities mentioned above, retained their position in the top Quintile in 1992. The poorest counties - Bee, Jim Wells, Uvalde, and Maverick - in which the non-metro cities with the lowest REH reside, all continued to be in the bottom Quintile in 1992. The mean per capita income (PCI) growth rate for MSA counties was significantly higher than for non-metro counties.

**(3) Levels and Changes in City/County Economic Health (Private Employment per 100 Residents or PEP100):** Consistent with findings about the concentration of PCI growth in the suburban cities of the DFW CMSA, nine of 17 cities (53%) whose private economies produced Very High and High rates of growth in PEP100 were in the Dallas-Fort Worth area. These were suburban, rather than central, cities in MSA counties. Of the six largest cities in the state, only Austin and San Antonio experienced high PEP100 growth rates. Some cities affected by the downturn in the Texas petroleum industry with relatively low rates of PCI growth also had Low growth in PEP100 between 1972 and 1992. Of the border MSA cities with chronically low PCI, Laredo's PEP100 increased by almost one-quarter (22.7%), placing it in the high-growth range. Harlingen, McAllen, El Paso, and Brownsville also exhibited Medium PEP100 growth, but Del Rio had the second-lowest PEP100 increase in the state.



The MSA counties more or less mirrored, in relative terms, the changes in economic health exhibited by their constituent MSA cities, but the magnitude of changes in economic health (PEP100 percent changes) was much higher for a given county as compared to its constituent city. The counties with strong REH growth also showed strong improvements in economic health, especially counties in the DFW CMSA. Surprisingly, barring Hidalgo, the border counties - Cameron, El Paso, Val Verde, and Webb - showed medium to high growth in PEP100 levels.

Below median non-metro cities like Uvalde, Kingsville, Beeville, and Mineral Wells showed strong improvements in economic health. Gainesville, Huntsville, Freeport, Sweetwater, Brownwood, and Eagle Pass all experienced a decline in PEP100 levels. The non-metro counties matched, in relative terms, the performance of their constituent non-metro cities, as far as changes in PEP100 levels were concerned. The magnitude of changes in PEP100 levels of non-metro counties was much higher than their resident non-metro cities.

## **1.2 FINDINGS: CHANGES IN THE FISCAL HEALTH OF TEXAS CITIES AND COUNTIES, 1972-1992 (DETAILS IN SECTION 3.2.4)**

Overall, "rich" cities--those with positive fiscal health scores--overwhelmingly stayed rich, while the "poor" cities stayed poor. In unadjusted, normalized, and standardized terms, the fiscally healthiest cities were in the DFW area. In 1992, Richardson could provide services equal to the median baseline service quality in 1972 and still have 106% of its Revenue-Raising Capacity (RRC) left over for tax cuts or service improvements, and so on. As they did in terms of PCI growth and PEP100 (city economic health), border cities also dominate the list of the poorest cities, i.e., those with negative fiscal health index (FHI) scores in 1992 (Harlingen, McAllen, Laredo, Brownsville, and El Paso). San Antonio, however, improved its fiscal health from -21% of its RRC relative to the 1972 median to +1.08%. In 1992, it was therefore able to provide baseline 1972 services and still have 1.08% of its 1992

RRC for tax cuts or service improvements.

We also found a U-shaped relationship between fiscal health and population change that mirrored the findings about patterns of population and PCI growth in Texas MSA cities; the fastest-growing populations have been in relatively affluent cities and in relatively poor cities of the Rio Grande Valley. Because high PCI growth is also a characteristic of FHI scores in Quintile 1 (Figure 3.2), and much lower PCI growth occurred in Quintile 5, we assert again that new residents of the faster-growing cities in Quintile 1--particularly, as we have pointed out, those in the DFW CMSA--were much more affluent than those in the slower- but still fast-growing cities of Quintile 5. Fiscal health was found to be positively correlated with population and PCI change.

The MSA counties displayed a significant improvement in their fiscal health between 1972-1992. The healthiest counties were in the DFW CMSA while the weakest were in the Rio Grande or border regions. Fiscal health was found to be positively correlated with population and PCI change.

The non-metro (non-MSA) cities in our group also showed an improvement in their fiscal health in the last two decades. Groves, Pampa, Borger, and Cleburne were among the healthiest while Alice, Eagle Pass, and Uvalde were in the weakest fiscal condition. Non-metro cities' fiscal health was *negatively* correlated with population change and positively related to PCI change.

The non-metro counties in our study, like the other categories, experienced an improvement in their fiscal health between 1972-1992. Gray, Hutchinson, Johnson, and Comal were the fiscally strongest while Jim Wells, Maverick, Uvalde, Dawson, and Walker were the weakest. The fiscal health of non-MSA counties was found to be *negatively* correlated with population change and positively correlated with PCI change, as in the case of their resident non-MSA cities.

### **1.3 SUMMARY OF FORECASTS OF FHI FOR TEXAS CITIES AND COUNTIES: 1995 AND 2000 (DETAILS IN SECTION 3.2.5)**

Among the MSA cities, most of the fiscally healthy cities are expected to improve their standardized FHI scores in 1995-2000. A significant majority of the MSA cities in weak fiscal health, as of 1992, are likely to experience a deterioration in their fiscal condition. Overall, 43% of the MSA cities are expected to decline in fiscal health. The richest cities will continue to be in the DFW area while the poorest ones will be mainly concentrated in the Rio Grande or border areas of Texas.

In the case of the non-metro cities, the upper-half (the cities with the strongest fiscal condition) are all expected to improve their standardized FHI scores in 1995-2000. Among the moderate-to-weak cities, 50% are likely to decline in fiscal health and 17% will retain their level as of 1992, while 33% are expected improve their fiscal condition in 1995-2000. Overall, 23% of all the non-metro cities are expected to decline in fiscal health by 2000.

The MSA counties are expected to fare much better than their resident MSA cities with 86% experiencing a strengthening of their fiscal condition by 2000. The richest counties will continue to be in the DFW area. The 5 weakest counties, as of 1992, are all in the Rio Grande or border areas of Texas and are expected to stay in more or less the same fiscal condition in 1995-2000.

The non-metro counties are expected to show a strong improvement with 92% of them likely to experience an increase in their standardized FHI score by 2000. Only 2 counties are expected to stagnate in their weak fiscal condition (as of 1992) - Uvalde and Maverick. All of the richest counties - Comal, Gray, Hutchinson, and Wilbarger - in 1992 are slated to have the strongest fiscal condition in 1995-2000.

#### **1.4 FINDINGS: RELATIONSHIP BETWEEN CHANGES IN FISCAL HEALTH, LOCAL ROAD AND STREET EXPENDITURES, AND ROAD AND STREET CONDITIONS IN TEXAS CITIES (DETAILS IN SECTIONS 4.2 AND 4.3)**

First, our index of FHI is an important, statistically significant determinant of MSA city transportation spending. Given that it explained between 10 and 15% of the variation in spending, we also infer that other factors--including policy interventions at the state and local level--in addition to the structural ones captured by fiscal health cause, or are related to, the rest of the variation in city road and street spending. Using city bridge conditions as a proxy for road and street conditions, we then linked fiscal health to the latter through road and street expenditures. Each \$10,000 increase in construction, maintenance, and total expenditures per road-mile resulted in statistically significant decreases in the percentage of deficient or obsolete bridges in a given MSA city. Increases in maintenance spending were associated with the greatest decreases in the percentage of bad (deficient or obsolete) bridges. Increased spending on construction and maintenance activities had a positive and statistically significant impact on the average sufficiency rating of a city's bridges.

These findings serve as useful estimates of the magnitude of the relationship between fiscal health and city street conditions in Texas over the last decade. They also link the fiscal, economic, and transportation issues that lie at the heart of the problem upon which this analysis focuses: if fiscal health is related to city street conditions through city street expenditures, have there been expenditure shortfalls that might be causing city roads and streets to deteriorate? The findings also demonstrate that a city/county can exert a positive influence on the conditions of its bridges and, by extension, on its roads/streets through increased spending on construction and, more importantly, maintenance activities.

## **1.5 FINDINGS: ESTIMATES AND FORECASTS OF UNDER AND OVERSPENDING ON ROADS AND STREETS BY TEXAS CITIES AND COUNTIES, 1972-1992, AND 1995-2000 (DETAILS IN SECTION 4.5.2)**

The percentage of MSA cities which underspent, i.e., could not meet the expenses required to keep their roads and streets in an acceptable condition, continually increased between 1972-1992, going up from 51% in 1972 to 66% in 1992. Based on the forecasts, 69% of MSA cities in 1995 and 67% of MSA cities in 2000, are expected to fall short of meeting their road and street expenditure needs.

The picture in the case of MSA counties was very similar with the percentage of counties which underspent on their roads and streets increasing from 58% in 1972 to 72% in 1992. This trend is expected to continue with 72% in 1995 and 75% in 2000 expected to fall short of meeting their road and street needs.

Among the non-metro cities, 60% in 1972 and 61% in 1992 were expected to underspend. In 1995 and 2000, we expect a *decrease* in the percentage of non-metro counties who are likely to underspend on their roads and streets, with 46% in 1995 and 50% in 2000 slated to fall short of meeting their needs.

For non-metro counties, we did not have sufficient information to make any conclusions. For the years 1972, 1982, and 1992, the cities and counties for which we had information available, were estimated to have underspent a total of \$298 million (1992 Dollars), while for the years 1995 and 2000, the expected figure is \$12 million (1992 Dollars) in *overspending*. The MSA cities, however, are still expected to continue to underspend in 1995 and 2000 (\$67 million).

## 1.6 SUMMARY OF POLICY RECOMMENDATIONS (DETAILS IN SECTION 5.0)

Our overall recommendation: reform and re-focus TxDOT local aid allocation formulae. This has two components.

*Recommendations 1 and 2 focus on incorporating fiscal health data and under/overspending estimates into an aid allocation formula.*

- **Recommendation 1:** Correlate TxDOT aid allocations with city and county fiscal health scores and estimated levels of under/overspending.
- **Recommendation 2:** In cooperation with MPOs, maintain and update the data on fiscal health and under/overspending by cities and counties.

*Recommendations 3, 4, and 5 focus on generating and maintaining data on local road and street conditions so it can be incorporated into the aid allocation process.*

- **Recommendation 3:** Require all jurisdictions that receive state aid from TxDOT to install and maintain a Pavement Management System (PMS).
- **Recommendation 4:** For non-metro jurisdictions with a population of 10,000 or more that do not receive aid, allocate monies for purchase and installation of PMS.
- **Recommendation 5:** Institute decennial census of pavement conditions in metro and non-metro jurisdictions using PMS data from cities and counties.

## **2.0 STUDY PROBLEM STATEMENT**

Are metropolitan areas in Texas witnessing a decline in their fiscal capacities? Across the Northeastern and Midwestern United States, declines in the ability of urban areas to raise public revenue from local sources have caused cities to reduce expenditures for services and investments in core infrastructure. Street maintenance expenditures have declined, and arterial street improvements not funded from state or federal sources have been delayed or cancelled. In many, if not all, of these places, this has caused local transportation infrastructure to deteriorate, seriously impairing the effectiveness of planned improvements in metropolitan highways and other transportation facilities.

There is anecdotal evidence that leads some observers to believe that these problems are being manifested in Texas cities. If they are, this study aims at providing local and state policy makers with a description of the extent of the problem and recommendations on how to devise remedies.

### **2.1 BACKGROUND AND SIGNIFICANCE OF STUDY**

Since the late 1970s, dozens of studies have documented the decline of older urban areas in our nation's Northeastern and Midwestern regions and the rise of the so-called Sunbelt Cities in the South and West. (Watkins and Perry, 1977; Stanback and Drennan, 1978; Weinstein and Clark, 1979; Muller, 1979; Dusenbury and Beyle, 1979; Watkins, 1980; Joint Economic Committee of the U.S. Congress, 1983, 1984a, 1984b; Clark and Ferguson, 1982; Fainstein and Fainstein, 1983; Sawers and Tabb, 1984; Smith, 1984; MacDonald, 1984). The decline of older cities has been attributed to various factors, but three of these appear to be the most important.

First, their bases of economic activity, employment, and personal income have been radically transformed since World War II. Manufacturing firms have largely abandoned the

central districts of these cities. The middle-income, often unionized jobs that accompanied them have been replaced by lower-paying occupations in personal service industries and a very few high-paying positions in the finance, insurance, and real estate and producer service sectors. Generally, lower income occupations have replaced higher-income ones, with a resulting decline in per capita income in these areas. (Bluestone and Hamson, 1982; Stanback, et al., 1981; Noyelle and Stanback, 1983)

Second, the demographic composition of their populations has changed. (Frey and Speare, 1988) City residents in older areas of the U.S. have grown older, poorer, and more heavily dominated by minorities.

Third, economically and socially mobile firms and households began to move to suburban and exurban locations on the urban fringe. (Jacobs, 1961) The spatial structure of these cities has been altered, with the affluent living in incorporated suburbs and the poor remaining in central city districts.

These three factors have caused a continuous decline in the property and income tax bases of older cities. This has caused an apparently irreversible downward spiral: as tax bases and incomes decline, so does the ability of cities to raise revenue for public services and infrastructure; as the level of public revenue and expenditures decrease, so does the quality of services and infrastructure; as the quality of city life consequently deteriorates, affluent residents leave the city for more amenable residences and business locations in the suburbs. This spiral has left older cities increasingly dependent on Federal and state revenue sources. As Federal aid has decreased throughout the last two decades, their fiscal health has worsened (Burchell, et al., 1982; Carr, 1984; Howell and Stamm, 1979; Kamer, 1983; Ladd and Yinger, 1989).

These changes have contributed to a long-term weakening of the capacity of these cities to fund necessary services and investments in core infrastructure. Transportation



infrastructure has been affected in a particularly negative way, with massive deterioration of urban streets and roadways causing increasing traffic congestion and decreasing urban mobility.

Until now, metropolitan fiscal health--and the ability of cities to maintain and improve local roadways--has not been of vital interest to TxDOT. However, there is reason to believe that the fiscal health of cities in the Sunbelt, and especially those in Texas, is beginning to decline. (Housewright, 1991) Budget shortfalls are commonplace, as are cutbacks in services and the maintenance of core infrastructure, including city-maintained streets.

The reasons for this apparent decline in the fiscal capacity of Texas cities are unclear. Their economic structure has historically been very different from cities in the Northeast and Midwest. The wealth of these cities has depended on resource extraction and related services (Houston), finance, insurance, real estate, and producer services (Dallas), and government and university employment (Austin). There have been cyclical and oil-price related declines in economic performance during the past twenty years, but overall, per capita income growth in Texas' major cities has outperformed the nation as a whole. The abundance of cheap land surrounding these areas, and the strict dependence on automobile transportation, has meant that the residential and firm location patterns of these cities have almost always been suburban-oriented, particularly in Dallas and Houston. The retreat of the affluent and successful to suburbs and exurbs has not been viewed with alarm nor has it been thought necessary to counter that retreat. Nevertheless, if fiscal health is declining in cities, towns, and counties across the state--particularly in the area of state aid for local transportation infrastructure-- appropriate policies can be formulated prior to the onset of local fiscal crises like those seen in older sections of the country.

## **2.2 STUDY OBJECTIVES**

This study asks the following questions:

- What changes have occurred in the fiscal health of Texas cities and counties between 1972 and 1992?
- How are changes in fiscal health related to (a) the ability of local road and street departments to maintain and improve their roads, streets, and bridges; and (b) the condition of local roads, streets, and bridges?
- Have efforts by TxDOT to provide assistance to local transportation departments been properly targeted?

## **2.3 STUDY IMPLEMENTATION**

This study will provide TxDOT with:

- an historical view of trends in the fiscal health of Texas's cities and counties;
- the effects of those trends on local expenditures for road, street, and bridge maintenance and construction, and on road, street, and bridge conditions;
- a forecast of longer-range trends in fiscal health and local road and street expenditures in cities and counties across the state; and
- policy recommendations with respect to changes that may be required over the next decade in TxDOT's targeting of state aid to local transportation departments and metropolitan planning organizations (MPOs).

### **3.0 THE FISCAL HEALTH OF TEXAS CITIES AND COUNTIES**

We begin this study by asserting what will likely be regarded as a commonplace: that the fiscal health of a given city or county, other things being equal (i.e., engineering practices and the quality of local government management), is an important if not fundamental determinant of the ability of its transportation department to effectively maintain (and in some cases, construct) the streets, roads, and bridges for which it is responsible. This assertion effectively links local road and street conditions to the economic and fiscal variables that determine a city or county's fiscal health. While this relationship is conceptually simple, operationalizing it is not. It involves defining and calculating fiscal health, linking changes in fiscal health with local road, street, and bridge expenditures, and finally, expenditures with road, street, and bridge conditions.

#### **3.1. DEFINING FISCAL HEALTH**

Throughout this study, we use the term fiscal health in a general and a technical sense. Generally speaking, fiscal health refers to the ability of a city or county to raise sufficient revenue--from its residents and the business enterprises within its jurisdiction--to provide services and infrastructure consistent with urbanization levels and the needs of residents and businesses. Technically, we account for these factors by measuring fiscal health as the difference between RRC and Standardized Expenditure Need (SEN), expressed as a percentage of RRC. We explain these terms in Section 3.2.3, below.

#### **3.2 THE STRUCTURAL DIMENSIONS OF FISCAL HEALTH IN TEXAS CITIES AND COUNTIES: DEMOGRAPHICS AND ECONOMICS**

Our study group of cities and counties comprises the universe of all metropolitan-area cities and counties in the state: 53 cities and 35 MSA counties of which these cities are a part.

Some of these are “core” counties (e.g., Harris County is the core county for the Houston Primary Metropolitan Statistical Area (PMSA) but many are suburban counties within an MSA, e.g., Denton, Collin (Dallas PMSA), and Guadalupe (San Antonio MSA). Similarly, we have central core cities like Dallas, Fort Worth, Houston etc., and outer suburban cities like Richardson, North Richland Hills, Baytown, etc.. We also included the 28 largest rural cities in the state and the 26 non-metro counties in which they reside. We identified rural (non-metro) cities as those that had a population of at least 10,000 persons in 1970 and which were not located in an MSA county. The final set of cities and counties which we retained in our study group were selected on the basis of availability of sufficient data to carry out the various analyses required by this report.

Please note, that cities or counties from our study group which are located within a Metropolitan Statistical Area (MSA), PMSA, etc., are referred to as "MSA Cities" or as "MSA Counties" in the text of this report. Those cities and counties which are not part of any MSA, PMSA, etc., are referred to as "Non-Metro Cities" or "Non-Metro Counties". A "rural" or "non-MSA" city or county refers to a "Non-Metro" city or county. "Urban" cities/counties refers to "MSA" cities/counties or cities and counties which are located in a MSA or PMSA etc..

Our study focuses on the structural rather than the budgetary dimensions of local fiscal health, i.e., on economic, demographic, and fiscal trends that are independent of whether a city or county is managed well or poorly. Structural fiscal health measures can be tracked over time, independent of shifting political fortunes and alliances. Moreover, budgetary measures are ill-suited for examining fiscal health because, in the short-term, a city or county may face a budgetary crisis due to increases in the demand for services, new federal or state mandates, or cuts in intergovernmental aid. Through adroit management, it may be able to raise taxes or enact spending cuts. This results in a balanced budget but does not alter the long-term structural causes for poor fiscal health that are largely, if not completely, outside city management’s control. Conversely, a city or county in good fiscal health, with a diverse

base of healthy businesses and a productive population, can end up with budget deficits due to poor local government management.

### **3.2.1 Population Trends in Texas Cities and Counties: 1970-1990**

Clearly, population growth has a large, long-term structural effect on local fiscal health. Growing populations mean larger local markets for area businesses. As these businesses hire more workers, their wages increase the velocity of local commercial activity. As this accelerates, and per capita income grows, tax revenues increase. This can result in a self-perpetuating, or endogenous long-term cycle of urban growth, although most cities do not experience that which produces a Los Angeles, Atlanta, or Dallas, to name three latter-day examples. Growing populations also increase the dynamism of housing and industrial location patterns, which affect fiscal health through geographic shifts in tax bases and changes in property values.

However, an increase in population is not necessarily advantageous for a city or county's fiscal health, and population loss is not necessarily undesirable. With an increasing population comes increasing demands for services and public expenditures for improving those services. Population growth can also bring a host of urban diseconomies: the costs associated with urban congestion, social service needs of the poor, higher crime rates, and substandard housing. Some economists have accounted for the trade-off between economies and diseconomies of urban size by attempting to calculate the optimum size of an urban area relative to its fiscal health. We have not attempted such a calculation, but it is clear that there is no direct relationship, positive or negative, between population growth and fiscal health. It is also clear, other things being equal, that growing cities and counties are more likely to have good fiscal health than those that are stagnant or declining.

Tables 3-1 and 3-2 show population trends between 1970 and 1990 in the 53 MSA cities and the 35 MSA counties we studied. Tables 3-3 and 3-4 show the 28 non-metro cities

and 26 non-metro counties, respectively. Beginning with Table 3-1, Galveston and Beaumont were the only MSA cities that lost population between 1970 and 1990. Wichita Falls was the only city to experience no change in population over that period. Relative rates of increase varied widely, however. The median increase for the ten fastest-growing cities was about 166%; for the top five, 197%. Significantly, seven of the ten fastest growing cities and two of the fastest growing metro counties were in the DFW CMSA, Plano (Collin County), Carrollton (Dallas County), Arlington (Tarrant County), North Richland Hills (Tarrant), Duncanville (Dallas), Garland (Dallas), and Grand Prairie (Dallas). Irving (Dallas), Richardson (Dallas), and Mesquite (Dallas)--also DFW suburbs--were among the second 10 fastest-growing cities.

Importantly, all of these were suburban cities within the Dallas and Fort Worth MSAs that grew explosively from a very small base over the last two decades. Of the six largest MSA cities in the state (Houston, Dallas, San Antonio, El Paso, Austin, and Fort Worth), however, Dallas and Fort Worth had the smallest population increases, and neither were among the state's fastest growing cities. The population increases in these two cities at the center of the state's fastest growing metropolitan areas were about one-tenth and one-twelfth, respectively, of those on their suburban rims, the fastest-growing cities in our study group. Significantly, McAllen, Mission, and Brownsville, three cities in the Lower Rio Grande Valley with historically high rates of unemployment and poverty, were either among or close to (Brownsville ranked 11th) the ten fastest-growing MSA cities.

**TABLE 3-1 POPULATION TRENDS, TEXAS MSA CITIES, 1970-1990**

City	1970 Population	1980 Population	1990 Population	Percent Change: 1980-1990	Percent Change: 1970-1990
Plano	17872	72331	128679	77.9%	620.0%
Carrollton	13855	40595	82169	102.4%	493.1%
College Station	17676	37272	52456	40.7%	196.8%
Arlington	90032	160113	261763	63.5%	190.7%
North Richland Hills	16514	30592	45895	50.0%	177.9%
Duncanville	14105	27781	35748	28.7%	153.4%
McAllen	37636	66281	84021	26.8%	123.2%

City	1970 Population	1980 Population	1990 Population	Percent Change: 1980-1990	Percent Change: 1970-1990
Garland	81437	138857	180635	30.1%	121.8%
Mission	13043	22653	28653	26.5%	119.7%
Grand Prairie	50904	71462	99,613	39.4%	95.7%
Brownsville	52522	84997	98962	16.4%	88.4%
Austin	251808	345890	465577	34.6%	84.9%
Mesquite	55131	67053	101484	51.3%	84.1%
Killeen	35507	46296	63535	37.2%	78.9%
Laredo	69024	91449	122899	34.4%	78.1%
Edinburg	17163	24075	29895	24.2%	74.2%
Denton	39874	48063	66270	37.9%	66.2%
Bryan	33719	44337	55002	24.1%	63.1%
El Paso	322261	425259	515342	21.2%	59.9%
Irving	97260	109943	155037	41.0%	59.4%
Longview	45547	62762	70316	12.0%	54.4%
Richardson	48582	72496	74842	3.2%	54.1%
Midland	59463	70525	89443	26.8%	50.4%
Harlingen	33503	43543	48735	11.9%	45.5%
Baytown	43980	56923	63838	12.1%	45.2%
Del Rio	21330	30034	30657	2.1%	43.7%
San Antonio	654153	786023	935927	19.1%	43.1%
Temple	33431	42354	46109	8.9%	37.9%
Nacogdoches	22544	27149	30872	13.7%	36.9%
Pasadena	89277	112560	119363	6.0%	33.7%
Victoria	41349	50695	55000	8.5%	33.0%
Houston	1232802	1595138	1630672	2.2%	32.3%
San Angelo	63884	73240	84474	15.3%	32.2%
Lufkin	23049	28562	30206	5.8%	31.1%
Tyler	57770	70508	75450	7.0%	30.6%
Corpus Christi	204525	232134	257453	10.9%	25.9%
Lubbock	149101	173979	186281	7.1%	24.9%
Amarillo	127010	149230	157615	5.6%	24.1%
Hurst	27215	31420	33574	6.9%	23.4%
Dallas	844401	904078	1006831	11.4%	19.2%
Abilene	89653	98315	106665	8.5%	19.0%
Haltom City	28127	29014	32856	13.2%	16.8%
Odessa	78380	90027	89783	-0.3%	14.5%
Fort Worth	393476	385164	447619	16.2%	13.8%
Sherman	29061	30413	31596	3.9%	8.7%

Waco	95326	101261	103590	2.3%	8.7%
Paris	23441	25498	24702	-3.1%	5.4%
Texas City	38908	41201	40822	-0.9%	4.9%
Texarkana	30497	31271	31656	1.2%	3.8%
Port Arthur	57371	61251	58724	-4.1%	2.4%
Wichita Falls	96265	94201	96259	2.2%	-0.0%
Beaumont	117548	118102	114323	-3.2%	-2.7%
Galveston	61809	61902	59072	-4.6%	-4.4%

On Table 3-2, MSA counties showed population growth trends similar to those of their constituent cities. Two Dallas-area counties, Collin and Denton, had the largest population increases, and counties in the Rio Grande Valley (Hidalgo, Cameron, and Webb) showed strong population gains. Jefferson County lost population.

**TABLE 3-2: POPULATION TRENDS, TEXAS MSA COUNTIES, 1970-1990**

County	1970	1980	1990	Percent	Percent
	Population	Population	Population	Change: 1980-1990	Change: 1970-1990
Collin	66920	144576	264036	82.60%	294.60%
Denton	75633	143126	273525	91.10%	261.60%
Hidalgo	181535	283229	383545	35.40%	111.30%
Brazos	57978	93588	121862	30.20%	110.20%
Travis	295516	419573	576407	37.40%	95.10%
Guadalupe	33554	46708	64873	38.90%	93.30%
Cameron	140368	209727	260120	24.00%	85.30%
Webb	72859	99258	133239	34.20%	82.90%
Coryell	35311	56767	64213	13.10%	81.80%
Brazoria	108312	169587	191707	13.04%	77.00%
Randall	53885	75062	89673	19.5%	66.4%
El Paso	359291	479899	591610	23.3%	64.7%
Tarrant	716317	860880	1170103	35.9%	63.3%
Midland	65433	82636	106611	29.0%	62.9%
Harris	1741912	2409547	2818199	17.0%	61.8%
Smith	97096	128366	151309	17.9%	55.8%
Bell	124483	157889	191088	21.0%	53.5%
Nacogdoches	36386	46786	54753	17.0%	50.5%



Bexar	830460	988800	1185394	19.9%	42.7%
Angelina	49349	64172	69884	8.9%	41.6%
Val Verde	27471	35910	38721	7.8%	41.0%
Dallas	1327321	1556390	1852810	19.0%	39.6%
Tom Green	71047	84784	98453	16.1%	38.6%
Victoria	53766	68807	74361	8.1%	38.3%
Gregg	75929	99487	104948	5.5%	38.2%
Ector	91805	115374	118934	3.1%	29.6%
McLennan	147553	170755	189123	10.8%	28.2%
Galveston	169812	195940	217399	11.0%	28.0%
Lubbock	179295	211651	222636	5.2%	24.2%
Nueces	237544	268215	291143	8.5%	22.6%
Taylor	97853	110932	119655	7.9%	22.3%
Lamar	36062	42156	43949	4.3%	21.9%
Bowie	67813	75301	81655	8.4%	20.4%
Grayson	83225	89796	95021	5.8%	14.2%
Potter	90511	98637	97874	-0.8%	8.1%
Wichita	120563	121082	122738	1.4%	1.8%
Jefferson	244817	250938	239397	-4.6%	-2.2%

Table 3-3 shows that cities in non-metro counties had more modest population gains from 1970 through 1990 than did their counterparts in MSA counties. The median increase for the top five non-metro cities was about 44.5%, less than one-third of the median increase for the fastest-growing MSA cities. A much larger number of non-metro cities--ten of the 28, or 35.7%--lost population, and by an average of about 10%.

**TABLE 3-3: POPULATION TRENDS, TEXAS NON-METRO CITIES:**

**1970-1990**

City	1970	1980	1990	Percent	Percent
	Population	Population	Population	Change: 1980-1990	Change: 1970-1990
Huntsville	17610	23936	27925	16.7%	58.6%
New Braunfels	17859	22402	27296	21.8%	52.8%
Cleburne	16015	19218	22205	15.5%	38.7%
Uvalde	10764	14178	14729	3.9%	36.8%
Bay City	13445	17837	18264	2.4%	35.8%

City	1970 Population	1980 Population	1990 Population	Percent Change: 1980-1990	Percent Change: 1970-1990
Eagle Pass	15364	21407	20651	-3.5%	34.4%
Palestine	14525	15948	18042	13.1%	24.2%
Seguin	15934	17854	18853	5.6%	18.3%
Corsicana	19972	21712	22897	5.5%	14.6%
Plainview	19096	22187	21552	-2.9%	12.9%
Borger	14195	15837	15675	-1.0%	10.4%
Snyder	11171	12705	12195	-4.0%	9.2%
Brownwood	17368	19396	18387	-5.2%	5.9%
Vernon	11454	12695	12001	-5.5%	4.8%
Greenville	22043	22161	23071	4.1%	4.7%
Gainesville	13830	14081	14256	1.2%	3.1%
Beeville	13506	14574	13547	-7.0%	0.3%
Sweetwater	12020	12242	11967	-2.2%	-0.4%
Alice	20121	20961	19788	-5.6%	-1.7%
Freeport	11997	13444	11375	-15.4%	-5.2%
Lamesa	11559	11790	10813	-8.3%	-6.5%
Brownfield	N/A	10387	9560	-8.0%	N/A
Groves	18067	17090	16513	-3.4%	-8.6%
Kingsville	28915	28808	25276	-12.3%	-12.6%
Pampa	21726	21396	18959	-11.4%	-12.7%
Denison	24923	23884	21505	-10.0%	-13.7%
Mineral Wells	18411	14468	14837	2.6%	-19.4%
Big Spring	28735	24804	23093	-6.9%	-19.6%

Finally, Table 3-4 shows population trends for Texas non-metro counties in our group over the last two decades. These trends closely correspond to the cities that reside in these counties.

**TABLE 3-4: POPULATION TRENDS, TEXAS NON-METRO COUNTIES:  
1970-1990**

County	1970	1980	1990	Percent	Percent
	Population	Population	Population	Change: 1980-1990	Change: 1970-1990
Comal	24165	36446	51832	42.2%	114.5%
Johnson	45769	67649	97165	43.6%	112.3%
Maverick	18093	31398	36378	15.9%	101.1%
Walker	27680	41789	50917	21.8%	83.9%
Anderson	27789	38381	48024	25.1%	72.8%
Uvalde	17348	22441	23340	4.0%	34.5%
Hunt	47968	55248	64343	16.5%	34.1%
Brown	25877	33057	34371	4.0%	32.8%
Matagorda	27913	37828	36928	-2.4%	32.3%
Cooke	23471	27656	30777	11.3%	31.1%
Navarro	31150	35323	39926	13.0%	28.2%
Scurry	15547	18192	18634	2.4%	19.9%
Grayson	83225	89796	95021	5.8%	14.2%
Jim Wells	33032	36498	37679	3.2%	14.1%
Bee	22737	26030	25135	-3.4%	10.5%
Hutchinson	24443	26304	25689	-2.3%	5.1%
Nolan	16220	17359	16594	-4.4%	2.3%
Hale	34137	37592	34671	-7.8%	1.6%
Wilbarger	15355	15931	15121	-5.1%	-1.5%
Terry	14052	14581	13218	-9.3%	-5.9%
Kleberg	33166	33358	30274	-9.2%	-8.7%
Gray	26949	26386	23967	-9.2%	-11.1%
Palo Pinto	28962	24062	25055	4.1%	-13.5%
Dawson	16604	16184	14349	-11.3%	-13.6%
Howard	37796	33142	32343	-2.4%	-14.4%

### 3.2.2 Economic Trends in Texas Cities and Counties, 1972-1992

We modify the approach used by Ladd and Yinger (1989) and use two measures to analyze the structural economic dimensions of a city's fiscal health: (1) Resident Economic Health (REH), measured by PCI, and (2) City/County Economic Health, measured as PEP100. We examine levels and rankings of PCI and PEP100 across our city and county study groups in 1972 and 1992, as well as changes in these levels and rankings over this twenty year interval.

#### *Resident Economic Health (REH)*

As noted above, we measure REH by PCI. PCI gives us a measure of the relative affluence of one city's residents versus another and is a key determinant of RRC.<sup>1</sup> We begin our analysis by categorizing cities and counties on the basis of 1972-1992 changes in their residents' per capita incomes. Tables A-1 through A-4 rank the MSA and non-metro cities and counties by PCI in 1972 and 1992. Cities and counties are then grouped into income quintiles, with cities and counties having the highest PCIs in 1972 and 1992 into Quintile 1 and those with the lowest into Quintile 5. The rightmost column on Tables A-1 through A-4 shows the movement of cities and counties up or down the income quintiles based on changes between 1972 and 1992 in the economic health of their residents, i.e., on PCI growth. A positive number indicates that PCI growth was of sufficient magnitude to push a given city

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<sup>1</sup>As we will discuss later, we employ a state-of-the-art measure of RRC developed by Ladd and Yinger (1989), where:

$$RRC = KY(1+e) .$$

**K** is the standard tax burden on a city's residents (expressed as a percent of per capita income), **e** is the export ratio (the tax burden on nonresidents per dollar of burden on residents), and **Y** is the per capita income of city residents. Also note that if a city is experiencing falling real income, it will have to increase tax burdens (**K**) relative to income (**Y**) simply to maintain constant spending out of own-source revenue.

into a higher income Quintile between 1972 and 1992, relative to the PCI rankings of all MSA cities for each of those two years. A negative number indicates that resident economic health in a given city declined relative to all Texas MSA cities (even though it may have increased in absolute or percentage terms), placing the city or county in a lower PCI Quintile.

Tables A-5 through A-8 display data on overall percentage changes in PCI levels with cities and counties categorized by growth ranges and their position relative to the statewide median PCI in 1972. PCI is expressed in constant 1982 dollars.

**MSA Cities: Tables A-1 and A-5** All Texas MSA cities experienced some PCI growth between 1972 and 1992. Table A-1, which shows PCI in dollar amounts (levels), and the rightmost column on Table A-5, which displays percent changes in PCI dollar amounts, reveal that PCI growth varied from as low as 13.6% in College Station to a statewide high of 129.4% in Plano. As we saw in the previous section, population grew most rapidly in the suburban cities of the DFW CMSA between 1972 and 1992. By and large, these cities also experienced the largest PCI increases in the state during that period.

Table A-1 shows that between 1972 and 1992, seven of ten cities in the highest income Quintile (Quintile 1) were in the DFW area in 1972, while nine of ten were there in 1992. Not only did resident economic health improve as population grew, but the gap between the economic health of their residents and that of the other MSA cities in Texas actually increased. In Richardson, for example, 1972 PCI was approximately 43% higher than the statewide MSA median; in 1992, about 72%. Given the patterns of suburbanization that occurred in other urban areas in the U.S. during this period, it seems reasonable to assert that the bulk of population growth in these places came from in-migration, and that most of the in-migrants had high incomes.

For the majority of Texas cities, PCI growth did not change their ranking of residents' economic health between quintiles. But 23 of 53 cities on the MSA list experienced enough

per capita income change to cause a shift from one income quintile to another. Of these, twelve moved up and eleven down. Of the twelve upwardly mobile cities, only Temple moved up two quintiles, from about 93% of the MSA median to 104%. Of the eleven whose rankings slipped, College Station was the only city to fall two quintiles.

The two cities that moved down from Quintile 1 to Quintile 2--Houston and Baytown, along with two cities that moved from Quintile 2 to 3, Pasadena and Beaumont, were in the so-called Golden Triangle of southeast Texas, home to the state's largest concentration of petrochemical and petroleum refining operations. Houston PCI grew 51.3% (Table A-5)--not much less than Dallas--and its PCI with respect to the 1972 and 1992 medians was almost unchanged (down about 1 percentage point). Baytown, however, had the state's fourth-slowest PCI growth rate at 35.7%, and saw its standing relative to the state's median fall from about 17% to about 4.6% above it in 1992. The city of Pasadena had an even slower rate of growth (the third-slowest at 34.3%), and saw its residents' per capita incomes move from almost 14% higher in 1972 to just slightly above the median in 1992.

Residents of Beaumont saw their per capita incomes rise both absolutely (from \$6,417 to \$9,841) and in relation to the median, from 2.5% above the 1972 median to 2.8% above the 1992 median. Resident economic health in Beaumont fell in the rankings (from Quintile 2 to Quintile 3), however, because PCI in other cities grew so much faster. Another southeast Texas city, Galveston, was the median city in both 1972 and 1992; half of Texas's MSA cities had PCIs greater than Galveston's, and half less. It, therefore, exhibited no PCI change relative to the rest of Texas's MSA cities.

Taken as a group, then, the mid-1980s downturn in the state's petroleum and petroleum-related industries, with subsequent layoffs in these capital-intensive, high-wage sectors, has negatively affected the economic health of cities in southeast Texas. Odessa, in the oil-extracting region of West Texas's Permian Basin, also suffered from the secular downturn in the oil industry. Odessa PCI stood slightly above the state's median level in

1972, but slipped from Quintile 3 to Quintile 4 by 1992, when its PCI stood at 93% of the state's median. The decline of the Permian Basin's oil economy, however, affected the region unevenly. Midland, Odessa's sister city, had the 6th-highest PCI in the state in 1972. In 1992, it was ranked ninth, but still grew fast enough to increase its PCI from 21% to 30% over the median.

In contrast, Carrollton and Duncanville, the two cities that moved into the highest income quintile, were both in the DFW area. Mesquite, which moved from Quintile 3 to Quintile 2, is also a DFW metro-area city. Dallas itself remained in the highest income quintile, and its residents' per capita income increased from 27% higher than the statewide median in 1972 to about 31% higher in 1992. As we can see on Table A-5, however, this PCI increase of 4 percentage points relative to the median, and 58.2% overall, is the lowest among the percentage increases experienced by the eight other DFW CMSA cities in the highest PCI quintile in 1992: Plano (129.4) Carrollton (112.2), Duncanville (91.1), Richardson (83.7), Mesquite (71.0), Irving (68.3), Hurst (67.1), and Arlington (59.6).

Fort Worth, the other central city in the Metroplex, was ranked in Quintile 2 in 1972. Its PCI increased 46% (Table A-5). This was not enough relative to its fast-growing neighbors to prevent it from moving down within the overall rankings (from 13th to 17th), and from 11% to about 6% above the statewide median PCI.

With the exception of Houston and Baytown, then, the economic health of residents in the ten most affluent jurisdictions of the state improved during the twenty-year interval we studied. Even North Richland Hills, where PCI was second-highest in 1972 but fell to tenth in 1992, improved its standing relative to the median, from 27 to 28% above. In contrast, REH in the state's poorest cities either stagnated or declined. Seven of the ten cities in Quintile 5 appeared there in both 1972 and 1987-El Paso, Harlingen, Del Rio, Edinburg, Laredo, Mission, and Brownsville. All of these are on the Texas-Mexico border, the perennial home of the state's highest unemployment rates and lowest per capita incomes. Per capita income,

as a percent of the statewide MSA median, actually declined slightly in Brownsville.

San Antonio, Paris, and McAllen, however, moved up from Quintile 5 to Quintile 4 in the PCI rankings. Of these three cities, McAllen enjoyed the greatest improvement relative to the median PCI in Texas MSA cities, from 69.7 in 1972 to 79.2% in 1992, and San Antonio PCI went from 83.1 to 87.8% of the median. But as PCI in Paris rose absolutely, in percentage terms, and in terms of its overall ranking, it fell 1.8 percentage points as a percent of the median.

Finally, Killeen, Nacogdoches, and College Station fell one or more quintiles into Quintile 5. College Station's very slow growth in PCI was the lowest rate in the state, and slow enough to reduce its percent of the median from slightly above in 1972 to only about 75% of the median in 1992. This was due largely to the massive growth in student enrollment at Texas A&M University as a proportion of population growth during the period. As such, it should be considered anomalous.

We now turn to the remaining information on Table A-5 which presents data on changes in REH in a slightly different fashion. It categorizes the MSA cities in our sample into two broad groups: those that were *Above* and *Below* the median city's REH in 1972. The tables further classify jurisdictions into *High*, *Medium*, and *Low Growth* groups based on the average 1972-1992 percentage change in their PCI.

Table A-5 shows that affluent suburban cities became more affluent during the 1972-1992 period. There was a striking disparity between PCI growth in suburban cities and the central cities of the largest metropolitan areas in the state. Consistent with the findings presented on Table A-1, 7 of 9 MSA cities in the Above Median, High Growth category were located in the Dallas-Ft. Worth CMSA. Of the six largest cities in the state (see Table A-5, above), only Austin (the fifth-largest) was in this group. Neither Dallas nor Fort Worth were included. Dallas ranked 13th in overall PCI growth, followed by San Antonio (36th),



Houston (20th), Ft. Worth (21st), and El Paso (49th).

Houston and Fort Worth, ranked first and sixth, respectively, in terms of total 1990 population, and were in the Above Median, Low Growth category. Dallas was in the middle of the pack of Above Median, Medium Growth cities. San Antonio, the state's third largest city, was in the Below Median, Medium Growth category, while El Paso, Texas's fourth-largest city, was in the Below Median, Low Growth category. Also notable is that among cities whose residents had Below Median per capita incomes in 1972, the Rio Grande Valley cities of McAllen, Harlingen, and Laredo had high growth in per capita income between 1972 and 1992. The residents of these cities had incomes that grew fairly rapidly from low levels in the base year.

Finally, Table 3-5, isolates the twenty cities with the most and least affluent residents--that is, with the highest and lowest PCI levels--in 1972 and 1992. Seven of the ten cities with the richest residents in 1972 were in the DFW area, including Dallas itself. As we would expect given the explosive PCI growth rates in this area, in 1992, nine of the top ten cities were in the DFW CMSA. Among the ten cities with the poorest residents, seven of ten in both 1972 and 1992 were located on the Texas-Mexico border.

**TABLE 3-5: BEST AND WORST RESIDENT ECONOMIC HEALTH,  
1972 AND 1992, MSA CITIES**

<b>TOP TEN CITIES: 1972</b>	<b>1972 PCI</b>	<b>TOP TEN CITIES: 1992</b>	<b>1992 PCI</b>	<b>PCI CHANGE 1972-1992</b>
Richardson	\$8,961	Plano*	\$16,840	129.4%
North Richland Hills	\$7,974	Richardson*	\$16,466	83.7%
Dallas	\$7,951	Carrollton**	\$14,714	112.2%
Arlington	\$7,854	Duncanville**	\$13,166	91.1%
Hurst	\$7,675	Hurst*	\$12,827	67.1%
Midland	\$7,602	Irving*	\$12,675	68.3%
Irving	\$7,533	Dallas*	\$12,580	58.2%
Baytown	\$7,370	Arlington*	\$12,533	59.6%
Plano	\$7,342	Midland*	\$12,503	64.5%
Houston	\$7,275	North Richland Hills*	\$12,280	54.0%
<b>BOTTOM TEN CITIES: 1972</b>	<b>1972 PCI</b>	<b>BOTTOM TEN CITIES: 1992</b>	<b>1992 PCI</b>	<b>PCI CHANGE 1972-1992</b>
Brownsville	\$3,198	Brownsville*	\$4,850	51.7%
Mission	\$3,262	Mission*	\$5,315	62.9%
Laredo	\$3,262	Laredo*	\$5,388	65.1%
Edinburg	\$3,624	Edinburg*	\$5,768	59.2%
Del Rio	\$3,955	Del Rio*	\$5,805	46.8%
Harlingen	\$4,105	Harlingen*	\$7,087	72.6%
McAllen	\$4,366	College Station**	\$7,148	13.6%
El Paso	\$5,140	Nacogdoches**	\$7,315	38.9%
Paris	\$5,183	Killeen**	\$7,395	40.1%
San Antonio	\$5,206	El Paso*	\$7,411	44.2%

\*=Cities which remained in top/bottom ten from 1972

\*\*=Cities which moved into top/bottom ten in 1992

NOTE: All PCI amounts are expressed in 1982 Dollars

**MSA counties: Tables A-2 and A-6** The changes in REH for the 35 MSA counties largely reflect those of the 53 MSA cities located in them. Among the 35 metropolitan counties on Table A-2, the most striking improvement in resident economic health was that of Denton County in the DFW CMSA, which moved from the fifth-poorest to the third-richest overall and from the bottom quintile to the top with an overall PCI increase of 185.6%. Collin County, with a PCI gain of more than 60 percentage points relative to the statewide median,

or almost 150% over the period (almost identical to the gain of its principal city, Plano) was the other DFW CMSA county to move up, from Quintile 2 to Quintile 1.

Four of Texas's richest seven MSA counties as of 1992, then, were in the DFW CMSA, compared with two in 1972. Dallas, Midland, and Harris Counties all remained among the seven most affluent urban counties, albeit at per capita income levels that were slightly lower relative to the MSA county median than in 1972. Randall (Amarillo) and Tarrant also remained in Quintile 1, at slightly higher levels above the median.

By virtue of Denton and Collin's explosive growth, Travis and Galveston Counties fell out of the top seven. But looking at Table A-6, we see that Travis had the second-highest MSA county PCI growth rate (80.5%) among counties whose PCI levels were above the state median in 1972. This gain was sufficient to move it from 15 to 28% above the state median in 1992. Galveston County, like the City of Galveston, registered very little relative PCI change.

Six of Texas' poorest counties in 1972, Nacogdoches, Coryell, Val Verde, Cameron, Webb, and Hidalgo, stayed in the lowest quintile of REH. An addition to the lowest (5th) quintile was El Paso, which slipped from Quintile 4 to Quintile 5. This is consistent with the patterns observed in other border-area counties.

Midland County stayed in the top quintile, as did Midland city; however, Ector County did slip from Quintile 2 to Quintile 4. This could be attributed to the downturn in the oil industry seen between 1972-1992. Another county which experienced a strong decline was Potter, which fell from Quintile 2 to 4. Victoria County showed a strong improvement in its REH, moving up from Quintile 4 to 2, having an 87.7% increase in real per-capita income in the period.

**Non-Metro Cities: Tables A-3 and A-7** The cities in the top Quintile (1): Groves, Pampa, Borger, and Cleburne all maintained their position as the most prosperous rural cities

in Texas, as far as REH is concerned. The new addition to the Quintile 1 was Bay City, which moved up from Quintile 4 experiencing a PCI growth of 78.9%. This was consistent with the generally higher PCI growth rate of below median cities (Table A-7).

Seguin, Beeville, Uvalde, and Eagle Pass figured in the bottom Quintile 5 in both 1972 and 1992 (Table A-3). These cities were below median cities in 1972 and continued to be below median cities in 1992. They experienced medium to high levels of PCI growth between 1972-1992 (Table A-7).

Mineral Wells and Freeport, both above median cities in 1972, dropped 3 Quintiles, from 1 to 4. Freeport is in the "Golden Triangle," in which Beaumont and Pasadena, also experienced declines in REH. New Braunfels, Vernon, and Kingsville, all below median cities in 1972, showed strong relative PCI growth to move up 1 Quintile each (Table A-3). Corsicana, Greenville, and Denison, which were above median cities in 1972, also showed impressive growth relative to the median resulting in upward movements of 1 Quintile for each these cities.

Plainview, Big Spring, and Lamesa, all above median cities in 1972 (Table A-7), experienced low PCI growth between 1972-1992, and as a result, dropped between Quintiles 2 and 4.

**Non-Metro Counties: Tables A-4 and A-8** Among the counties in Quintile 1 in 1972, Gray, Johnson, and Brazoria retained their top position in 1992 (Table A-4). It can be seen from Table A-3 that Pampa and Cleburne, cities in Gray and Johnson Counties, respectively, also were in the top Quintile of REH. All these counties were above median counties in 1972 and showed medium to high PCI growth between 1972 to 1992 (Table A-8).

The counties with the poorest REH in 1972 (Quintile 5): Bee, Jim Wells, Uvalde, and Maverick stayed in the bottom Quintile in 1992. These counties which were below median in

1972 exhibited low to medium PCI growth ranging from 45% for Maverick to 62.7% for Uvalde (Table A-8). In addition, these counties' REH clearly reflects the status of their respective constituent cities: Beeville, Uvalde, Eagle Pass, and Alice (see Tables A-3, A-7).

Palo Pinto County, like its main city Mineral Wells, dropped 3 Quintiles from Quintile 1 to 4 (Tables A-3 and A-4). Palo Pinto was an above median county in 1972 (Table A-8), with a PCI 18% above the median PCI in 1972. The county had very low PCI growth, increasing only 25% between 1972-1992. Matagorda County moved up two Quintiles from Quintile 4 to 2. Bay City in Matagorda County had shown strong improvement in REH, moving up 3 Quintiles (see Table A-3). Walker County also moved up from Quintile 5 to Quintile 3 (Table A-4). Walker and Matagorda, which showed strong improvements in REH were below Median counties in 1972; however, they showed high PCI growth in the period (90.1% and 80.6%: Table A-8).

### *City and County Economic Health*

As we have seen so far, there are significant differences in population and resident economic health between central cities/counties compared to suburban cities/counties in the MSA counties. In order to get around these differences, we again follow Ladd and Yinger (1989) and make cross-sectional comparisons of city/county economic health using private employment per 100 residents (PEP100) as a measure. This is a comprehensive measure available for all sectors of the local economy. It tracks the degree to which a city/county's private sector economy is successfully producing employment for its residents. We use private sector employment alone as a determinant of a city/county's economic health because in contrast to public sector activity, most private sector activity is subject to the major revenue producer of local governments, i.e., the property tax. In addition, private sector activity has a greater effect on the cost of providing public services than does public service activity. Thus,

the private sector is more closely linked to a city/county's fiscal health than the public sector.<sup>2</sup>

Tables A-9 through A-12 display city and county economic health data for MSA cities, MSA counties, non-metro cities, and non-metro counties, respectively. Denton's PEP100 score of 46.09 in 1992, for example, means that there were roughly 46 private sector employees per 100 residents in 1992.<sup>3</sup> The tables rank cities and counties in descending order by percentage growth in PEP100 between 1972 and 1992. The tables also show whether a given city or county was above or below the median PEP100 in 1972.

**Metropolitan-area (MSA) cities: Table A-9** Table A-9 displays data consistent with findings presented earlier about the concentration of PCI growth in the suburban cities of the DFW CMSA; nine of the 17 cities (53%)--excluding the central cities of Dallas and Ft. Worth--whose private economies produced very high and high rates of growth in PEP100 were in the DFW area. These were primarily suburban, rather than central, cities in MSA counties. Of the six largest cities in the state, only Austin and San Antonio experienced high PEP100 growth rates.

Some cities affected by the downturn in the Texas petroleum industry that had relatively low rates of PCI growth (Tables A-1 and A-5)--Pasadena, Baytown, and Odessa--also had low growth in PEP100 between 1972 and 1992. Midland, where PCI grew between 1972 and 1992, actually saw PEP100 drop by the largest percentage of any MSA city- 13.3%. Of the border MSA cities with chronically low PCI, Laredo's PEP100 increased by almost one-quarter (22.7%), placing it in the high-growth range. Harlingen, McAllen, El Paso, and

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<sup>2</sup>However, since PEPC includes private sector jobs held by both city residents *and* nonresidents who work in the city but live outside it, a high score on the index of city economic health is not necessarily correlated with good resident economic health.

<sup>3</sup>In some instances, private sector employment per capita exceeds the civilian labor force participation rate, which means that the private sector is producing so many jobs that workers from other cities are commuting to jobs in a given city.

Brownsville also exhibited Medium PEP100 growth, but Del Rio had the second-lowest increase in the state.

Table 3-6 shows the 10 highest- and lowest-ranking MSA cities in terms of their PEP100 levels in 1972 and 1992. Again, consistent with earlier findings, in 1972 nine of the top ten cities were in the DFW area, while all of the top ten in 1992 were in the DFW CMSA. In 1972, six of the bottom ten cities with the poorest economic health (levels of PEP100) were along the Texas-Mexico border. The figure increased to seven of the ten in 1992, although five of the seven had positive growth rates, including Laredo's rate of almost 23% (Table A-9).

**TABLE 3-6: PRIVATE EMPLOYMENT PER 100 RESIDENTS (PEP100), BEST AND WORST MSA CITIES, 1972 AND 1992**

<b>TOP TEN CITIES 1972</b>	<b>1972 PEP100</b>	<b>TOP TEN CITIES 1992</b>	<b>1992 PEP100</b>	<b>PEP100 CHANGE 1972-1992</b>
Arlington	43.15	Irving*	50.18	17.8%
Irving	42.61	Carrollton**	49.93	36.2%
Haltom City	41.32	Hurst*	48.52	20.5%
Dallas	41.02	Plano**	48.50	21.1%
Grand Prairie	40.82	Arlington*	48.41	12.2%
Duncanville	40.73	Richardson**	48.13	25.9%
North Richland Hills	40.51	North Richland Hills*	46.28	14.3%
Garland	40.33	Denton**	46.09	51.5%
Hurst	40.26	Duncanville*	45.58	11.9%
Pasadena	40.06	Garland*	45.55	12.9%

<b>BOTTOM TEN CITIES 1972</b>	<b>1972 PEP100</b>	<b>BOTTOM TEN CITIES 1992</b>	<b>1992 PEP100</b>	<b>PEP100 CHANGE 1972-1992</b>
Bryan	17.09	Del Rio*	22.74	-13.1%
Killeen	20.48	Killeen*	23.86	16.5%
Texarkana	21.71	Mission*	24.06	-5.7%
Laredo	23.43	Brownsville*	27.68	9.3%

BOTTOM TEN CITIES 1972	1972 PEP100	BOTTOM TEN CITIES 1992	1992 PEP100	PEP100 CHANGE 1972-1992
Brownsville	25.31	Laredo*	28.75	22.7%
Mission	25.50	Edinburg**	29.10	0.4%
Del Rio	26.15	College Station**	29.96	-1.2%
San Antonio	27.92	El Paso*	31.11	10.8%
El Paso	28.08	McAllen*	31.37	10.4%
McAllen	28.42	Port Arthur**	31.54	-1.9%

\* = Cities which remained in top/bottom ten from 1972

\*\* = Cities which moved into top/bottom ten in 1992

NOTE: All PEP100 figures are number of private sector employees per 100 residents

**MSA Counties: Table A-10** Travis, Brazos, and Bell counties had very high growth rates for PEP100, ranging from 66.4-74.9%. The metro-area cities in these counties (Table A-9): Austin, Bryan, and Killeen also experienced high PEP100 percent increases over the 20 year period. Tarrant and Dallas Counties had medium levels of PEP100 growth relative to other MSA counties; however, some of the constituent cities in these counties, i.e., Arlington, Irving, Mesquite, North Richland Hills, Richardson, Hurst, and Garland had high PEP100 growth relative to other MSA cities (see Table A-9).

Even though Harris County had low relative PEP100 growth, its actual PEP100 percent change of 15.1% is greater than its constituent city, Houston, which had PEP100 growth of only 4.7%, which was medium relative to the other MSA cities (see Table A-9). Midland and Ector Counties had a negative growth in private employment. This is congruent with the deterioration of city economic health witnessed in Midland and Odessa as a result of loss of employment in the oil and gas industries. Among the border MSA counties, Cameron (Harlingen and Brownsville cities), El Paso (El Paso city), and Val Verde (Del Rio city) exhibited medium PEP100 growth ranging from 25.6 to 30.9%. Webb County, home to Laredo city, had a very impressive growth of 38.7%, while Hidalgo County, containing McAllen city, had a relatively low PEP100 growth rate of 15.5%.



Bexar County, like its main city San Antonio, showed high PEP100 growth (Table A-10). Denton and Collin Counties, the other DFW MSA counties, showed strong improvement in their economic health registering PEP100 increases of 54.3% and 32.8%, respectively. Victoria, Nueces, and Bowie Counties had high *relative* PEP100 growth rates, similar to their cities- Victoria, Corpus Christi, and Texarkana.

The metro-area counties more or less mirrored the changes in economic health exhibited by their constituent cities. However, the mean PEP100 growth rate for above median metro counties was 18.5 % as compared to the 7.6% for the above median metro cities. Similarly, the mean PEP100 growth for below median metro counties was 39.4% while it was 14.0% for the below median metro cities.

**Non-Metro Cities: Table A-11** Plainview had a very strong improvement in its economic health with a 69.5% increase in PEP100. Uvalde, Kingsville, Beeville, and Mineral Wells had strong PEP100 improvements ranging from 20% to 38%. All these cities had below median PEP100 levels in 1972. Kingsville, Beeville, and Greenville all of which had high *relative* PEP100 growth rates are adjacent to Corpus Christi, Victoria, and Plano, MSA cities which also had high *relative* PEP100 growth rates (see Table A-9).

Palestine, Lamesa, New Braunfels, Vernon, Alice, Bay City, and Denison had a medium level of improvement in economic health with PEP100 increases ranging from 8.4% to 18.9%. Gainesville (near Denton and Sherman), Huntsville, Freeport (near Galveston city), Sweetwater, Brownwood, and Eagle Pass all experienced a decline in economic health showing decreases in PEP100 ranging from -2.3% for Eagle Pass to -28.6% for Gainesville.

**Non-Metro Counties: Table A-12** Kleberg County had a very strong improvement in its economic health showing an increase of 70.2% in its PEP100. Its principal city, Kingsville, also had experienced a strong growth in PEP100 (see Table A-10). Bee, Scurry,

Hale, Dawson, and Hunt Counties all had high *relative* PEP100 growth. Their constituent cities Beeville, Snyder, Plainview, Lamesa, and Greenville also had high *relative* growth in their PEP100 levels (see Table A-11).

Terry (Brownfield city), Nolan (Sweetwater city), Maverick (Eagle Pass city), and Cook (Gainesville city) Counties had the least improvement in their economic health ranging from -4.3% for Cook County to 4.5% for Terry County. These counties exactly mirrored the performance of their constituent cities, shown in parentheses above, as far as changes in economic health were concerned (see Table A-11).

Though the non-metro counties showed the same *relative* patterns vis-a-vis their constituent cities in the change in their economic health, i.e., changes in their PEP100 levels, the magnitude of these changes was quite different, with the counties showing greater change. The mean PEP100 change for above median non-metro counties was 21.2% as compared to 6.3% for the non-metro cities (Table A-11), and the mean change for below median non-metro counties was 30.4% compared to 13.2% for the non-metro cities.

### **3.2.3 Summary and Conclusions**

The fiscal health of Texas cities and counties depends on structural--i.e., demographic and economic--factors that are generally outside the control of city/county council members, city managers, and county commissioners. We can draw several conclusions from the demographic and economic trends outlined in the preceding sections.

**(1) Population Growth:** Suburban cities in the DFW metropolitan area and cities along the Mexican border had the fastest-growing populations in the state over the last two decades. The large cities - Houston, Dallas, San Antonio, and Fort Worth experienced low to moderate growth relative to the suburban cities in these MSAs. The metropolitan area counties showed population growth trends similar to their constituent cities. The counties in

the suburban DFW area and Rio Grande Valley showed very strong population gains.

The non-metro cities showed more modest population increases as compared to the metro-area cities. A significant portion of non-metro cities in our sample (35.7%) lost population in the last 2 decades (1970-1990). The non-metro counties in our study group mirrored their constituent cities in terms of population growth. The non-metro counties had a much more subdued increase in the number of residents in comparison to their metro-area counterparts, with 20% of the non-metro counties experiencing a decline in the size of their populations.

**(2) Levels and Changes in Resident Economic Health (Per Capita Income)** The most rapid per capita income growth occurred in affluent suburban cities of the DFW CMSA. The disparity in per capita income growth rates between DFW CMSA cities and counties, oil-dependent jurisdictions, and communities in other regions of the state caused the relative economic health of the residents of many Texas cities and counties to fall relative to Metroplex localities. Of the ten cities with the most affluent residents--that is, with the highest PCI levels in 1972 and 1992--seven were in the DFW area, including Dallas itself. As we would expect given the explosive PCI growth rates in this area, nine of the top ten cities were in the DFW CMSA in 1992. Among the ten cities with the poorest residents, seven of ten in both 1972 and 1992 were located on the Texas-Mexico border. Despite relatively rapid per capita income growth, residents of Mexican border cities in the Rio Grande Valley and Far West Texas remained the poorest in the state.

The metro-area counties in the DFW CMSA showed impressive growth in REH both in absolute terms (percentage increase) and in relative terms (moved up quintiles: see Table A-2). The poorest MSA counties in 1972 stayed the poorest in 1992, with five of them being along the Texas-Mexico border.

Among the non-metro cities in the top quintile in 1972- Groves, Pampa, Borger, and Cleburne- all retained their position as the most prosperous in 1992 having the highest REHs. The cities in the bottom Quintile 5 in 1972 - Seguin, Beeville, Uvalde, and Eagle Pass - continued to be the poorest rural cities in 1992.

The richest non-metro counties - Gray, Johnson, and Brazoria- home to the richest non-metro cities mentioned above, retained their position in the top Quintile 1 in 1992. The poorest counties - Bee, Jim Wells, Uvalde, and Maverick - in which the cities with the lowest REH reside, all continued to be in the bottom Quintile 5 in 1992.

**(3) Levels and Changes in City/County Economic Health (Private Employment per 100 Residents)** Consistent with findings about the concentration of PCI growth in the suburban cities of the DFW CMSA, nine of 17 cities (53%) whose private economies produced Very High and High rates of growth in PEP100 were in the DFW area. These were suburban, rather than central, cities in MSA counties. Of the six largest cities in the state, only Austin and San Antonio experienced high PEP100 growth rates. Some cities affected by the downturn in the Texas petroleum industry with relatively low rates of PCI growth also had Low growth in PEP100 between 1972 and 1992. Of the border MSA cities with chronically low PCI, Laredo's PEP100 increased by almost one-quarter (22.7%), placing it in the high-growth range. Harlingen, McAllen, El Paso, and Brownsville also exhibited Medium PEP100 growth, but Del Rio had the second-lowest PEP100 increase in the state. Also consistent with findings about levels of PCI, the 10 highest- and lowest-ranking MSA city PEP100 levels in 1972 and 1992 were very similar across time. In 1972, nine of the top ten cities were in the DFW area, while all of the top ten in 1992 were in the DFW CMSA. In 1972, six of the bottom ten cities with the poorest economic health (levels of PEP100) were along the Texas-Mexico border. This increased to seven of ten in 1992, although five of these seven cities had positive growth rates in PEP100 between 1972 and 1992.

The MSA counties more or less mirrored, in relative terms, the changes in economic health exhibited by their constituent MSA cities. However, the magnitude of changes in economic health (PEP100 percent changes) were much higher for a given county as compared to its constituent city. The counties which had exhibited high growth in REH also showed strong improvements in economic health, especially counties in the DFW CMSA. Surprisingly, barring Hidalgo, the border counties - Cameron, El Paso, Val Verde, and Webb - showed medium to high growth in PEP100 levels.

Below median non-metro cities like Uvalde, Kingsville, Beeville, and Mineral Wells showed strong improvements in economic health. These cities were adjacent to MSAs which also had high *relative* PEP100 growth. Gainesville, Huntsville, Freeport, Sweetwater, Brownwood, and Eagle Pass all experienced a decline in PEP100 levels. Kleberg County had a very strong improvement in its economic health. The non-metro counties matched, in relative terms, the performance of their constituent non-metro cities, as far as changes in PEP100 levels were concerned. The magnitude of changes in PEP100 levels of non-metro counties was much higher than their resident non-metro cities.

### **3.2.4 Trends in the Fiscal Health of Texas Cities and Counties, 1972-1992**

#### *Calculating Fiscal Health*

Measuring fiscal health is more complex than merely describing changes in the economic and demographic structure of cities/counties. To be sure, fiscal health is dependent to a significant extent on these factors, but others are important. We have examined these directly and computed levels and indexes of changes in fiscal health from 1972 to 1992. These involve calculating (a) a city/county's revenue-raising capacity (RRC), which is highly dependent on changes in per capita income; (b) its standardized expenditure need (SEN), an outcome correlated with population growth and city/county economic health, i.e., on the private sector's employment-generating capacity (measured earlier as PEP100); and

subtracting SEN from RRC to arrive at (c) its fiscal health.

RRC is defined as the amount of revenue a city/county could raise from a set of broad-based taxes at a selected tax burden on its residents. In Texas' case, the taxes available for use by a city or county government are sales and property taxes. The tax burden--also known as tax effort--is expressed as a percent of resident income, i.e., as dollars per \$100 of resident income. A city/county's SEN is the amount it must spend per capita to provide public services of average quality. Fiscal health is the difference between RRC and SEN, expressed as a percentage of RRC.

As noted earlier, the measure of RRC we use in this study is

$$\text{RRC} = \text{KY} (1 + e).$$

**K** is a city or county's *tax effort*, defined as the total *Own Source Revenue* of the city divided by the total income of its residents. **Y** is the per capita income of city/county residents, and **e** is the tax burden on nonresidents per dollar of burden on residents, also known as the city/county's export ratio. The export ratio is a crucial determinant of RRC because it tells us how much of a city/county's tax burden it can place on nonresidents--i.e., commuters and tourists.

In our RRC calculations, we incorporate two taxes available to Texas cities/counties--property and sales taxes-- and uniform tax burdens on the cities and counties in our sample. We derived this tax burden by taking the average of all the cities' individual tax efforts (average tax effort for all the MSA cities in our group = 4.35%). Thus, our measure of RRC indicates how much revenue a city/county could raise from property and sales taxes at a given tax burden. The export ratio, or **e**, in the computation of RRC is a weighted average for each

of the two taxes to which Texas cities/counties have access.<sup>4</sup> RRC, therefore, varies across cities/counties because of differences in per capita income and variation in the ability of cities/counties to export part of their tax burdens to nonresidents. Appendix E contains a more thorough description of the method and data sources we used to calculate export ratios.

We should state here that we assume that the export ratio,  $e$ , for metro and non-metro counties is zero. RRC for these jurisdictions, then, is simply a function of tax effort  $K$  multiplied by  $Y$ , or per capita income. We think this simplifying assumption is valid because almost all tax exporting is carried out by larger cities within metro counties. Many commuters, for example, live outside the city limits but within the county in which the city to which they commute is located. Metro and non-metro counties alike, thus, have very little opportunity to tax individuals from outside the county's boundaries.

While interesting in themselves, RRCs alone cannot give us an accurate picture of fiscal health. To calculate a fiscal health index, we also computed standardized expenditure need, or SEN, for every jurisdiction in our study group. SEN is the amount a city/county must spend per capita to provide public services (in this case, police, fire, and health services, and street and road maintenance) of average quality to its residents. Public service expenditures are a function of three components: the extent of the service responsibilities assigned to a city/county by its state government, the quality of public services selected by a city/county government, and the per capita cost of public services in a city/county.

Since we are dealing solely with jurisdictions in Texas, we assume that service responsibilities are uniform. The public services we are concerned with are police, fire, and general services. General services include roads and streets, health, housing, corrections, libraries, parking, parks and recreation, sanitation, sewers, and air and water transportation. For the purposes of comparability, we hold constant the level of service quality across all the

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<sup>4</sup> The weight given to the property tax export ratio was 66.67% and 33.33% to the sales tax export ratio.

jurisdictions in our sample. The cost of public services depends on factors such as input prices (labor, infrastructure, and supplies of various types), population density, the number of economically disadvantaged residents, the percent of old housing in the mix of a city's housing stock, and the composition of the real property in a given jurisdiction--e.g., the percent that is residential (both rental and owner-occupied), commercial, or industrial. As is the case with our other structural measures, most of these factors are outside the control of city/county management. Please refer to Appendix E for a detailed discussion.

The method to calculate FHI discussed above and outlined in Appendix E is very complex and data intensive requiring information on more than 36 different variables (see Appendix E and Table E-1). Thus, using this method alone, we would have been able to compute FHI for only a fraction of the MSA cities in our study group, due to the severe data limitations we faced. In order to be able to compute FHI for the rest of the MSA cities and non-metro cities and counties in our study we adopted a modified approach called the "Abridged Method".

The "Abridged Method" used regression analysis to approximate FHI scores, obtained from the original complex approach, using *only 7 variables* and year dummies (variables to account for year to year variations). The FHI for any city or county was computed as the sum of the product of these 7 variables and year dummies multiplied by their corresponding regression coefficients (obtained from the regression model). By using the much simpler Abridged Method, in conjunction with our original data intensive method, we were able to compute FHI for most of the cities and counties in our study group. Please refer to Appendix E under "Abridged Method" for a detailed discussion on this approach.

#### *Fiscal Health Indexes (FHI) for Texas Cities and Counties, 1972-1992*

Individual FHI values are reported for metro cities, metro counties, non-metro cities, and non-metro counties on the tables described in the next section. FHI scores



should be interpreted as follows: an index of +20 means that a city/county could provide public services of average quality and still have 20% of its revenue-raising capacity left for tax cuts or higher quality services. An index of -20 indicates that a city/county would need additional revenue from outside sources equal to 20% of its own RRC to be able to provide public services of average quality to its residents. Clearly, FHI is a critical measure; it gives us, at least by implication, the degree to which cities and counties will need assistance from state or Federal authorities--particularly TxDOT--to construct and maintain local roads and streets, one of the principal goals of this research.

We calculated FHI scores for 1972, 1982, and 1992. We present this data in three ways.

- First, we present them as unadjusted percentages of RRC for each year, as separate cross-sections.
- Second, we present them as normalized percentages of RRC. This also provides a set of three separate cross-sections. The median unadjusted FHI score for each year (1972, 1982, and 1992) is subtracted from all FHI scores for each year so that the median city/county's score for each year equals zero. In this way, we can see individual FHI scores in relation to the median city/county's FHI score (of zero) for that year. We can view the standing of each city or county relative to all Texas cities and counties in the study group for 1972, 1982, and 1992. This is similar to the approach on Tables A-1 through A-8, which ranked PCI and PEP100 based on 1972 and 1992 levels (dollar amounts and private employees per 100 residents) and compared these levels as percentages of 1972 and 1992 medians.
- Third, we compare standardized scores from 1972-1992. We set the median FHI score equal to zero in 1972 by subtracting the median score from all scores in 1972 and also subtracted this from 1992 scores. If a city/county has an FHI of +20% in

1992, then, it means that the city/county was able to provide the same level of service quality as the median city/county did in 1972 and still have 20% of its 1992 RRC left over for tax cuts or increased spending for improved services.

**Texas MSA Cities: Table 3-7A1 through 3-7A3** Tables 3-7A1 through 3-7A3 display the three dimensions of the MSA city FHI data as described above. Clearly, Table 3-7A1 shows that on an unadjusted basis, there has been a large improvement in the fiscal health of Texas MSA cities over the two-decade study period. Fourteen of the 41 cities for which

**TABLE 3-7A1: FISCAL HEALTH INDEXES, TEXAS MSA CITIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

City	1972 FHI	City	1982 FHI	City	1992 FHI
Richardson	50.15%	Richardson	58.10%	Richardson	115.44%
Baytown	38.19%	Carrollton	50.54%	Plano	111.59%
Hurst	37.24%	Hurst	46.95%	Carrollton	91.96%
Irving	36.73%	Duncanville	43.77%	Duncanville	85.44%
Arlington	36.65%	Irving	39.91%	Hurst	79.90%
Pasadena	34.80%	Plano	36.52%	North Richland Hills	75.05%
Haltom City	34.45%	North Richland Hills	35.60%	Irving	70.95%
Garland	33.52%	Garland	34.75%	Arlington	68.41%
Grand Prairie	33.36%	Arlington	34.74%	Garland	67.17%
Dallas	30.39%	Pasadena	30.90%	Mesquite	61.68%
Mesquite	27.87%	Mesquite	29.78%	Midland	57.42%
Fort Worth	27.17%	Midland	29.62%	Dallas	56.93%
Denton	21.24%	Dallas	26.48%	Grand Prairie	55.40%
Sherman	20.93%	Baytown	25.86%	Haltom City	45.54%
Texas City	20.19%	Haltom City	25.80%	Pasadena	45.28%
Houston	19.31%	Grand Prairie	23.50%	Baytown	44.45%
Tyler	13.30%	Houston	22.83%	Houston	41.30%
Beaumont	11.64%	Fort Worth	18.54%	Temple	40.07%
Longview	11.33%	Denton	18.39%	Austin	40.06%
Temple	10.85%	Sherman	14.75%	Sherman	38.20%

City	1972 FHI	City	1982 FHI	City	1992 FHI
Galveston	9.13%	Temple	14.56%	Texas City	37.30%
Midland	7.86%	Texas City	11.92%	Fort Worth	36.79%
Port Arthur	5.11%	Beaumont	11.11%	Denton	32.41%
Texarkana	5.07%	Odessa	10.17%	Beaumont	32.01%
Amarillo	4.80%	Amarillo	9.53%	Tyler	30.81%
Austin	4.23%	Tyler	7.46%	Longview	30.05%
Wichita Falls	3.61%	Galveston	7.30%	Amarillo	26.73%
Odessa	-1.94%	Abilene	4.08%	Texarkana	24.15%
Abilene	-2.96%	Longview	3.05%	Bryan	23.74%
Bryan	-4.22%	Wichita Falls	2.80%	Galveston	22.27%
Lubbock	-5.30%	Austin	1.49%	Wichita Falls	21.14%
Waco	-6.49%	Lubbock	-1.68%	Odessa	21.04%
Corpus Christi	-8.53%	Victoria	-4.49%	Abilene	20.01%
San Angelo	-10.73%	Bryan	-4.53%	Victoria	19.87%
San Antonio	-11.87%	Corpus Christi	-4.57%	San Angelo	19.44%
Killeen	-16.17%	San Angelo	-4.62%	Lubbock	18.46%
El Paso	-21.15%	Port Arthur	-5.47%	Corpus Christi	12.20%
McAllen	-30.79%	Texarkana	-6.50%	San Antonio	10.21%
Harlingen	-35.23%	Waco	-9.65%	Killeen	8.62%
Brownsville	-55.82%	San Antonio	-17.22%	Port Arthur	1.08%
Laredo	-67.10%	Killeen	-17.51%	Waco	0.88%
Carrollton	NA	Harlingen	-24.86%	Harlingen	0.65%
College Station	NA	College Station	-28.36%	College Station	-6.49%
Del Rio	NA	McAllen	-29.84%	McAllen	-10.07%
Duncanville	NA	El Paso	-33.25%	El Paso	-13.77%
Edinburg	NA	Brownsville	-51.37%	Laredo	-46.09%
Lufkin	NA	Laredo	-78.21%	Brownsville	-51.03%
Mission	NA	Del Rio	NA	Del Rio	NA
Nacogdoches	NA	Edinburg	NA	Edinburg	NA
North Richland Hills	NA	Lufkin	NA	Lufkin	NA
Paris	NA	Mission	NA	Mission	NA
Plano	NA	Nacogdoches	NA	Nacogdoches	NA
Victoria	NA	Paris	NA	Paris	NA

City	1972 FHI	City	1982 FHI	City	1992 FHI
<b>MEAN</b>	7.58%	<b>MEAN</b>	8.69%	<b>MEAN</b>	34.35%
<b>MEDIAN</b>	9.13%	<b>MEDIAN</b>	10.17%	<b>MEDIAN</b>	32.01%
<b>STD DEV</b>	25.59%	<b>STD DEV</b>	27.06%	<b>STD DEV</b>	34.58%
<b>Min. Value</b>	-67.10%	<b>Min. Value</b>	-78.21%	<b>Min. Value</b>	-51.03%
<b>Max. Value</b>	50.15%	<b>Max. Value</b>	58.10%	<b>Max. Value</b>	115.44%

there was enough data to calculate FHI scores in 1972 had negative scores, that is, they needed monetary aid from an outside source equal to some percentage of their fiscal capacity in order to provide services and maintain infrastructure of an average quality. In 1982, 16 out of 47 cities needed outside assistance; in contrast, by 1992 only 5 cities out of 47 needed external assistance. The median scores rose dramatically over this time period, from 9.13 to 32.1 in 1992, meaning that the median city could afford to provide public services of average quality and still have 32% of its revenue-raising capacity left for tax cuts or higher quality services in 1992.

The highest-ranking cities in terms of FHI were located in the DFW CMSA including 13 of the 20 cities with the highest FHI scores in 1992, and all of the top ten. The FHI scores recorded by Richardson, Plano, and Carrollton were particularly noteworthy. All had indicated that at the average tax effort, they could afford to provide services of average quality and still have all or most of their RRC available for higher-quality services or tax cuts. Clearly, these cities are quite fiscally healthy, but these figures might overstate their health. Given our method of calculating fiscal health, they stem from a combination of very high per capita income growth--the critical determinant of revenue-raising capacity--and very low service costs (expenditure needs). This combination is not anomalous; families and individuals with high per capita incomes tend to require lower service expenditures by city and county governments.

This picture remains substantially the same for the fiscally healthiest cities and is more easily interpretable when we look at normalized FHI scores on Table 3-7A2. Each city's unadjusted score for 1972, 1982, and 1992 had the median score for that year subtracted from it. Rankings for each year are, of course, unchanged, but each city's FHI score is expressed relative to the median FHI. Richardson, for example, has an FHI in 1992 that would allow it to provide average service levels and, relative to the median city's FHI score of zero, it would still have 81% of its RRC left over for service improvements or tax cuts. The cities of Waco, Harlingen, College Station, McAllen, El Paso, Laredo, and Brownsville, however, need a boost of between 33 to 85% of their respective RRCs--relative to the median FHI score--from outside sources to provide service levels of average quality using the average city tax effort statewide. These rankings are consistent with what we saw earlier in our examination of changes in REH (PCI) and city economic health between 1972 and 1992.

**TABLE 3-7A2: NORMALIZED FISCAL HEALTH INDEXES, TEXAS MSA CITIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

City	1972 Norm. FHI	City	1982 Norm. FHI	City	1992 Norm. FHI
Richardson	41.02%	Richardson	47.93%	Richardson	83.43%
Baytown	29.06%	Carrollton	40.36%	Plano	79.58%
Hurst	28.11%	Hurst	36.78%	Carrollton	59.95%
Irving	27.60%	Duncanville	33.59%	Duncanville	53.44%
Arlington	27.52%	Irving	29.74%	Hurst	47.90%
Pasadena	25.68%	Plano	26.35%	North Richland Hills	43.04%
Haltom City	25.32%	North Richland Hills	25.43%	Irving	38.94%
Garland	24.39%	Garland	24.58%	Arlington	36.40%
Grand Prairie	24.23%	Arlington	24.56%	Garland	35.17%
Dallas	21.26%	Pasadena	20.73%	Mesquite	29.67%
Mesquite	18.75%	Mesquite	19.61%	Midland	25.41%
Fort Worth	18.05%	Midland	19.45%	Dallas	24.93%
Denton	12.12%	Dallas	16.31%	Grand Prairie	23.39%
Sherman	11.80%	Baytown	15.69%	Haltom City	13.53%

City	1972 Norm. FHI	City	1982 Norm. FHI	City	1992 Norm. FHI
Texas City	11.06%	Haltom City	15.62%	Pasadena	13.28%
Houston	10.18%	Grand Prairie	13.33%	Baytown	12.44%
Tyler	4.17%	Houston	12.66%	Houston	9.29%
Beaumont	2.51%	Fort Worth	8.37%	Temple	8.07%
Longview	2.20%	Denton	8.22%	Austin	8.06%
Temple	1.72%	Sherman	4.58%	Sherman	6.20%
Galveston	0.00%	Temple	4.39%	Texas City	5.29%
Midland	-1.27%	Texas City	1.75%	Fort Worth	4.78%
Port Arthur	-4.02%	Beaumont	0.94%	Denton	0.40%
Texarkana	-4.05%	Odessa	0.00%	Beaumont	0.00%
Amarillo	-4.33%	Amarillo	-0.64%	Tyler	-1.20%
Austin	-4.90%	Tyler	-2.71%	Longview	-1.96%
Wichita Falls	-5.52%	Galveston	-2.88%	Amarillo	-5.27%
Odessa	-11.07%	Abilene	-6.10%	Texarkana	-7.85%
Abilene	-12.09%	Longview	-7.12%	Bryan	-8.26%
Bryan	-13.35%	Wichita Falls	-7.37%	Galveston	-9.74%
Lubbock	-14.43%	Austin	-8.69%	Wichita Falls	-10.86%
Waco	-15.62%	Lubbock	-11.85%	Odessa	-10.97%
Corpus Christi	-17.65%	Victoria	-14.66%	Abilene	-11.99%
San Angelo	-19.86%	Bryan	-14.70%	Victoria	-12.14%
San Antonio	-21.00%	Corpus Christi	-14.74%	San Angelo	-12.56%
Killeen	-25.30%	San Angelo	-14.79%	Lubbock	-13.55%
El Paso	-30.28%	Port Arthur	-15.65%	Corpus Christi	-19.81%
McAllen	-39.92%	Texarkana	-16.67%	San Antonio	-21.80%
Harlingen	-44.36%	Waco	-19.82%	Killeen	-23.39%
Brownsville	-64.95%	San Antonio	-27.39%	Port Arthur	-30.93%
Laredo	-76.23%	Killeen	-27.68%	Waco	-31.12%
Carrollton	NA	Harlingen	-35.03%	Harlingen	-31.35%
College Station	NA	College Station	-38.54%	College Station	-38.50%
Del Rio	NA	McAllen	-40.01%	McAllen	-42.08%
Duncanville	NA	El Paso	-43.42%	El Paso	-45.77%
Edinburg	NA	Brownsville	-61.54%	Laredo	-78.10%

City	1972 Norm. FHI	City	1982 Norm. FHI	City	1992 Norm. FHI
Lufkin	NA	Laredo	-88.38%	Brownsville	-83.04%
Mission	NA	Del Rio	NA	Del Rio	NA
Nacogdoches	NA	Edinburg	NA	Edinburg	NA
North Richland Hills	NA	Lufkin	NA	Lufkin	NA
Paris	NA	Mission	NA	Mission	NA
Plano	NA	Nacogdoches	NA	Nacogdoches	NA
Victoria	NA	Paris	NA	Paris	NA

Finally, we examine standardized FHI for the 1972-1992 period on Table 3-7A3. As noted earlier, we set the median city FHI score for 1972 equal to zero by subtracting the 1972 median from all city scores in that year. Thus, the median difference between SEN, assuming uniform service responsibilities and an average tax burden on city residents in the cities we

**TABLE 3-7A3: 1972 AND 1992 STANDARDIZED FISCAL HEALTH INDEXES, (STANDARDIZED USING 1972 MEDIAN), MSA CITIES, RANKED IN DESCENDING ORDER**

City	1972 STD. FHI	City	1992 STD. FHI
Richardson	41.02%	Richardson	106.31%
Baytown	29.06%	Plano	102.46%
Hurst	28.11%	Carrollton	82.83%
Irving	27.60%	Duncanville	76.32%
Arlington	27.52%	Hurst	70.77%
Pasadena	25.68%	North Richland Hills	65.92%
Haltom City	25.32%	Irving	61.82%
Garland	24.39%	Arlington	59.28%
Grand Prairie	24.23%	Garland	58.04%
Dallas	21.26%	Mesquite	52.55%
Mesquite	18.75%	Midland	48.29%
Fort Worth	18.05%	Dallas	47.80%
Denton	12.12%	Grand Prairie	46.27%

City	1972 STD. FHI	City	1992 STD. FHI
Sherman	11.80%	Haltom City	36.41%
Texas City	11.06%	Pasadena	36.16%
Houston	10.18%	Baytown	35.32%
Tyler	4.17%	Houston	32.17%
Beaumont	2.51%	Temple	30.94%
Longview	2.20%	Austin	30.93%
Temple	1.72%	Sherman	29.07%
Galveston	0.00%	Texas City	28.17%
Midland	-1.27%	Fort Worth	27.66%
Port Arthur	-4.02%	Denton	23.28%
Texarkana	-4.05%	Beaumont	22.88%
Amarillo	-4.33%	Tyler	21.68%
Austin	-4.90%	Longview	20.92%
Wichita Falls	-5.52%	Amarillo	17.60%
Odessa	-11.07%	Texarkana	15.03%
Abilene	-12.09%	Bryan	14.61%
Bryan	-13.35%	Galveston	13.14%
Lubbock	-14.43%	Wichita Falls	12.01%
Waco	-15.62%	Odessa	11.91%
Corpus Christi	-17.65%	Abilene	10.88%
San Angelo	-19.86%	Victoria	10.74%
San Antonio	-21.00%	San Angelo	10.31%
Killeen	-25.30%	Lubbock	9.33%
El Paso	-30.28%	Corpus Christi	3.07%
McAllen	-39.92%	San Antonio	1.08%
Harlingen	-44.36%	Killeen	-0.51%
Brownsville	-64.95%	Port Arthur	-8.05%
Laredo	-76.23%	Waco	-8.25%
Carrollton	NA	Harlingen	-8.47%
College Station	NA	College Station	-15.62%
Del Rio	NA	McAllen	-19.20%
Duncanville	NA	El Paso	-22.90%
Edinburg	NA	Laredo	-55.22%



City	1972 STD. FHI	City	1992 STD. FHI
Lufkin	NA	Brownsville	-60.16%
Mission	NA	Del Rio	NA
Nacogdoches	NA	Edinburg	NA
North Richland Hills	NA	Lufkin	NA
Paris	NA	Mission	NA
Plano	NA	Nacogdoches	NA
Victoria	NA	Paris	NA
<b>1972 MEDIAN</b>	<b>9.13%</b>		

studied, and RRC in 1972 is zero. This is called baseline service quality, i.e., the quality of public services that could be obtained using own-source revenues raised at the average tax burden by a city with average 1972 RRC, average 1972 public service costs, and average 1972 service responsibilities.

Table 3-7A3 displays standardized scores relative to the 1972 median FHI score, ranked in descending order. As it was with the unadjusted and normalized scores, the fiscally healthiest cities were in the DFW area. In 1992, Richardson could provide services equal to the median baseline service quality in 1972 and still have 106% of its RRC left over for tax cuts or service improvements, and so on. As they did in terms of PCI growth (REH) and PEP100 (city economic health), border cities also dominate the list of the poorest cities, i.e., those with negative FHI scores in 1992: Harlingen, McAllen, Laredo, Brownsville, and El Paso. San Antonio, however, improved its fiscal health from -21% of its RRC relative to the 1972 median to +1.08%. In 1992, it was, therefore, able to provide baseline 1972 services and still have 1.08% of its 1992 RRC for tax cuts or service improvements.

**Texas MSA Counties: Tables 3-8A1 through 3-8A3** Table 3-8A1 shows the unadjusted FHI for MSA counties. The MSA counties, like their constituent cities, displayed a significant improvement in FHI over the two-decade study period, with the median FHI having increased from -8.75% in 1972 to 13.88% in 1992. The MSA counties *relative*

**TABLE 3-8A1: FISCAL HEALTH INDEXES, TEXAS MSA COUNTIES,  
RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

County	1972 FHI	County	1982 FHI	County	1992 FHI
Dallas	29.04%	Midland	76.09%	Collin	97.60%
Randall	27.05%	Harris	60.85%	Denton	67.11%
Tarrant	26.56%	Dallas	59.66%	Randall	60.57%
Collin	21.41%	Collin	49.66%	Dallas	57.48%
Harris	17.03%	Randall	42.42%	Midland	48.07%
Denton	7.27%	Potter	40.32%	Harris	47.27%
Potter	5.81%	Jefferson	39.13%	Tarrant	44.64%
Midland	4.54%	Denton	37.81%	Travis	41.52%
Jefferson	3.41%	Ector	37.23%	Gregg	22.87%
Gregg	0.07%	Tarrant	34.59%	Galveston	22.40%
Travis	-0.03%	Wichita	31.06%	Jefferson	21.07%
Galveston	-1.44%	Taylor	29.91%	Bowie	17.36%
Coryell	-3.36%	Travis	28.86%	Grayson	17.25%
Wichita	-4.25%	Gregg	27.95%	Wichita	15.42%
Bowie	-5.27%	Galveston	26.76%	Taylor	15.38%
Taylor	-5.65%	Victoria	23.33%	Smith	15.28%
Ector	-6.11%	Tom Green	23.24%	Coryell	15.20%
Smith	-8.75%	Nueces	19.49%	Bexar	13.88%
Grayson	-8.93%	Smith	17.91%	Victoria	12.24%
Bexar	-12.28%	Grayson	13.95%	Potter	11.95%
Lubbock	-12.49%	Lubbock	12.52%	Lubbock	11.43%
Tom Green	-14.51%	Bexar	10.06%	Bell	10.99%
Bell	-15.01%	McLennan	8.80%	Tom Green	10.18%
McLennan	-16.08%	Bell	8.09%	Ector	9.59%
Brazos	-17.70%	Angelina	-0.80%	Nueces	5.11%
Angelina	-17.76%	Coryell	-0.97%	McLennan	3.66%
Nueces	-20.83%	Lamar	-9.03%	Angelina	2.97%
El Paso	-25.14%	Nacogdoches	-10.46%	Lamar	-3.33%
Victoria	-26.04%	Brazos	-13.65%	Brazos	-5.65%

County	1972 FHI	County	1982 FHI	County	1992 FHI
Nacogdoches	-26.56%	El Paso	-24.02%	Nacogdoches	-13.19%
Lamar	-33.05%	Val Verde	-43.21%	Val Verde	-24.16%
Val Verde	-44.98%	Cameron	-49.18%	El Paso	-25.21%
Webb	-66.88%	Webb	-58.04%	Webb	-57.71%
Cameron	-68.57%	Hidalgo	-62.93%	Cameron	-60.09%
Hidalgo	-72.82%	Bowie	NA	Hidalgo	-75.38%
<b>MEAN</b>	-11.21%	<b>MEAN</b>	14.34%	<b>MEAN</b>	12.96%
<b>MEDIAN</b>	-8.75%	<b>MEDIAN</b>	21.37%	<b>MEDIAN</b>	13.88%
<b>STD DEV</b>	24.68%	<b>STD DEV</b>	33.32%	<b>STD DEV</b>	34.91%
<b>Min. Value</b>	-72.82%	<b>Min. Value</b>	-62.93%	<b>Min. Value</b>	-75.38%
<b>Max. Value</b>	29.04%	<b>Max. Value</b>	76.09%	<b>Max. Value</b>	97.60%

ranking mirrored that of their resident MSA cities. This was especially true in the case of the fiscally strongest counties which were mostly in the DFW area, and among the fiscally weakest counties, a majority of which were in the Rio Grande or border areas of Texas. These rankings are consistent with what was observed in our examination of resident economic health (see Table A-2). There were 25 counties which had negative scores in 1972, while in 1992, only 8 counties were fiscally deficient, implying they would need external assistance to provide services and maintain infrastructure of an average quality. The FHI scores for the MSA counties are, in general, lower than for the corresponding MSA cities. This is probably because we assumed a value of *zero* for the export ratio (see section 3.2.4 under *Calculating Fiscal Health*), which essentially means that the counties do not have access to tax revenue from *nonresidents*. The table is to be interpreted in a manner similar to Table 3-7A1 (see discussion accompanying Table 3-7A1).

The relative rankings of the counties remain the same in Table 3-8A2 as compared to Table 3-8A1. The FHI scores in Table 3-8A2 are normalized, i.e., the median FHI score for each year is subtracted from the unadjusted FHI scores in the corresponding years (see Table

3-8A1). We see that Collin County had a normalized FHI of 83.72% in 1992 which would allow it to provide services of average quality (equivalent to the median city in 1992) and still

**TABLE 3-8A2: NORMALIZED FISCAL HEALTH INDEXES, TEXAS MSA COUNTIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

County	1972 Norm. FHI	County	1982 Norm. FHI	County	1992 Norm. FHI
Dallas	37.79%	Midland	54.72%	Collin	83.72%
Randall	35.80%	Harris	39.48%	Denton	53.24%
Tarrant	35.31%	Dallas	38.30%	Randall	46.69%
Collin	30.17%	Collin	28.30%	Dallas	43.60%
Harris	25.78%	Randall	21.06%	Midland	34.20%
Denton	16.02%	Potter	18.95%	Harris	33.39%
Potter	14.56%	Jefferson	17.77%	Tarrant	30.76%
Midland	13.29%	Denton	16.45%	Travis	27.64%
Jefferson	12.16%	Ector	15.86%	Gregg	9.00%
Gregg	8.82%	Tarrant	13.23%	Galveston	8.52%
Travis	8.72%	Wichita	9.69%	Jefferson	7.19%
Galveston	7.31%	Taylor	8.55%	Bowie	3.49%
Coryell	5.39%	Travis	7.50%	Grayson	3.38%
Wichita	4.50%	Gregg	6.58%	Wichita	1.55%
Bowie	3.48%	Galveston	5.40%	Taylor	1.51%
Taylor	3.11%	Victoria	1.97%	Smith	1.40%
Ector	2.64%	Tom Green	1.88%	Coryell	1.33%
Smith	0.00%	Nueces	-1.88%	Bexar	0.00%
Grayson	-0.18%	Smith	-3.46%	Victoria	-1.63%
Bexar	-3.53%	Grayson	-7.42%	Potter	-1.92%
Lubbock	-3.74%	Lubbock	-8.84%	Lubbock	-2.44%
Tom Green	-5.76%	Bexar	-11.30%	Bell	-2.88%
Bell	-6.26%	McLennan	-12.56%	Tom Green	-3.69%
McLennan	-7.33%	Bell	-13.27%	Ector	-4.28%
Brazos	-8.95%	Angelina	-22.17%	Nueces	-8.77%

County	1972 Norm. FHI	County	1982 Norm. FHI	County	1992 Norm. FHI
Angelina	-9.01%	Coryell	-22.34%	McLennan	-10.22%
Nueces	-12.08%	Lamar	-30.39%	Angelina	-10.91%
El Paso	-16.39%	Nacogdoches	-31.82%	Lamar	-17.21%
Victoria	-17.29%	Brazos	-35.02%	Brazos	-19.52%
Nacogdoches	-17.81%	El Paso	-45.38%	Nacogdoches	-27.07%
Lamar	-24.30%	Val Verde	-64.58%	Val Verde	-38.04%
Val Verde	-36.23%	Cameron	-70.55%	El Paso	-39.08%
Webb	-58.13%	Webb	-79.40%	Webb	-71.58%
Cameron	-59.82%	Hidalgo	-84.29%	Cameron	-73.96%
Hidalgo	-64.07%	Bowie	NA	Hidalgo	-89.26%

have 83.72% of its RRC left over for service improvements or tax cuts. Based on this benchmark of the median-county service quality level, 17 counties would need external aid to provide service quality of a level equivalent to that of the median county in 1992. Five of these deficient counties are in the Rio Grande or border areas of Texas. The counties are assumed to derive tax revenues through property and sales tax, which are applied at the average tax effort rate (4.35%).

Table 3-8A3 examines standardized FHI of MSA counties for the period 1972-1992. Standardized FHI is arrived at by subtracting the 1972 median FHI from the unadjusted FHI scores for each of the years 1972, 1982, and 1992. Thus, the median county in 1972, had a standardized FHI = 0, and its service quality and service responsibilities are referred to as the

**TABLE 3-8A3: 1972 AND 1992 STANDARDIZED FISCAL HEALTH INDEXES,  
(STANDARDIZED USING 1972 MEDIAN), MSA COUNTIES, RANKED IN  
DESCENDING ORDER**

County	1972 Std. FHI	County	1992 Std. FHI
Dallas	37.79%	Collin	106.35%
Randall	35.80%	Denton	75.86%
Tarrant	35.31%	Randall	69.32%
Collin	30.17%	Dallas	66.23%
Harris	25.78%	Midland	56.82%
Denton	16.02%	Harris	56.02%
Potter	14.56%	Tarrant	53.39%
Midland	13.29%	Travis	50.27%
Jefferson	12.16%	Gregg	31.62%
Gregg	8.82%	Galveston	31.15%
Travis	8.72%	Jefferson	29.82%
Galveston	7.31%	Bowie	26.11%
Coryell	5.39%	Grayson	26.00%
Wichita	4.50%	Wichita	24.17%
Bowie	3.48%	Taylor	24.14%
Taylor	3.11%	Smith	24.03%
Ector	2.64%	Coryell	23.95%
Smith	0.00%	Bexar	22.63%
Grayson	-0.18%	Victoria	20.99%
Bexar	-3.53%	Potter	20.71%
Lubbock	-3.74%	Lubbock	20.18%
Tom Green	-5.76%	Bell	19.74%
Bell	-6.26%	Tom Green	18.93%
McLennan	-7.33%	Ector	18.34%
Brazos	-8.95%	Nueces	13.86%
Angelina	-9.01%	McLennan	12.41%
Nueces	-12.08%	Angelina	11.72%
El Paso	-16.39%	Lamar	5.42%

County	1972 Std. FHI	County	1992 Std. FHI
Victoria	-17.29%	Brazos	3.10%
Nacogdoches	-17.81%	Nacogdoches	-4.44%
Lamar	-24.30%	Val Verde	-15.41%
Val Verde	-36.23%	El Paso	-16.46%
Webb	-58.13%	Webb	-48.96%
Cameron	-59.82%	Cameron	-51.34%
Hidalgo	-64.07%	Hidalgo	-66.63%
<b>1972 MEDIAN</b>	<b>-8.75%</b>		

baseline service quality, which has been discussed before. Thus, for example, Hidalgo County would require external assistance equal to 66.63% of its RRC to be able to provide services equivalent to the baseline service quality in 1972. Most of the fiscally strongest counties were in the Dallas-Fort Worth CMSA, and a majority of the weakest were in the border or Rio Grande regions of Texas.

**Texas Non-Metro Cities: Tables 3-9A1 through 3-9A3** Table 3-9A1 shows the unadjusted FHI for non-metro cities in our study group. The non-metro cities' fiscal health improved between 1972-1992, with the median FHI having increased from -17.42% to -1.35%. Groves, Pampa, Borger, Cleburne, New Braunfels, and Greenville cities were among those with the strongest fiscal health, both in 1972 and 1992. These cities were also ranked among the top in resident economic health (REH) in 1992 (PCI: see Table A-3). Alice,

**TABLE 3-9A1: FISCAL HEALTH INDEXES, TEXAS NON-METRO CITIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

City	1972 FHI	City	1982 FHI	City	1992 FHI
Groves	12.17%	Groves	21.15%	Groves	40.21%
Pampa	6.63%	Borger	15.45%	Pampa	28.12%
Borger	2.05%	Pampa	10.20%	Borger	15.84%
Cleburne	-1.38%	Snyder	2.05%	Cleburne	15.28%
Freeport	-1.85%	New Braunfels	-3.91%	New Braunfels	15.24%

City	1972 FHI	City	1982 FHI	City	1992 FHI
Gainesville	-2.97%	Gainesville	-5.20%	Greenville	15.21%
Mineral Wells	-5.04%	Cleburne	-9.11%	Denison	9.04%
Greenville	-7.15%	Big Spring	-10.28%	Snyder	2.61%
Denison	-7.28%	Sweetwater	-11.64%	Vernon	1.59%
Snyder	-12.79%	Palestine	-11.76%	Corsicana	0.42%
Big Spring	-14.55%	Brownwood	-17.59%	Big Spring	-0.57%
New Braunfels	-14.56%	Mineral Wells	-19.11%	Plainview	-1.35%
Palestine	-16.89%	Vernon	-19.33%	Gainesville	-1.80%
Brownwood	-17.94%	Corsicana	-20.94%	Palestine	-5.26%
Plainview	-18.18%	Alice	-22.19%	Sweetwater	-13.56%
Corsicana	-18.35%	Greenville	-22.63%	Brownwood	-15.07%
Sweetwater	-23.29%	Plainview	-23.52%	Seguin	-16.88%
Lamesa	-26.38%	Bay City	-25.67%	Mineral Wells	-16.91%
Vernon	-26.91%	Seguin	-34.38%	Huntsville	-18.37%
Bay City	-27.48%	Huntsville	-37.79%	Lamesa	-22.99%
Seguin	-34.91%	Beeville	-42.90%	Freeport	-25.64%
Huntsville	-37.40%	Uvalde	-48.14%	Uvalde	-39.52%
Alice	-40.29%	Eagle Pass	-104.95%	Eagle Pass	-88.32%
Uvalde	-47.26%	Brownfield	NA	Alice	NA
Beeville	-48.84%	Denison	NA	Bay City	NA
Eagle Pass	-78.26%	Freeport	NA	Beeville	NA
Brownfield	NA	Kingsville	NA	Brownfield	NA
Kingsville	NA	Lamesa	NA	Kingsville	NA
<b>MEAN</b>	-19.58%	<b>MEAN</b>	-19.23%	<b>MEAN</b>	-5.33%
<b>MEDIAN</b>	-17.42%	<b>MEDIAN</b>	-19.11%	<b>MEDIAN</b>	-1.35%
<b>STD DEV</b>	19.94%	<b>STD DEV</b>	25.48%	<b>STD DEV</b>	25.84%
<b>Min. Value</b>	-78.26%	<b>Min. Value</b>	-104.95%	<b>Min. Value</b>	-88.32%
<b>Max. Value</b>	12.17%	<b>Max. Value</b>	21.15%	<b>Max. Value</b>	40.21%

Eagle Pass, Uvalde, Lamesa, and Huntsville were consistently the fiscally weakest non-metro cities in 1972, 1982, and 1992. Correspondingly, these cities also had the lowest REH (see



Table A-3) in 1972 and 1992. The median FHI scores for non-metro cities have been consistently lower than MSA cities, probably because we assumed that rural cities could not export any of their tax burdens to non-residents (export ratio = 0 for non-metro cities).

The *relative* rankings of the non-metro cities remains the same in Table 3-9A2. The FHI scores are normalized (defined above). In 1992, Groves city would have 41.56% of its RRC left over for tax cuts or improvements in service quality *after* providing services of

**TABLE 3-9A2: NORMALIZED FISCAL HEALTH INDEXES, TEXAS NON-METRO CITIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

City	1972 Norm. FHI	City	1982 Norm. FHI	City	1992 Norm. FHI
Groves	29.59%	Groves	40.26%	Groves	41.56%
Pampa	24.05%	Borger	34.55%	Pampa	29.46%
Borger	19.47%	Pampa	29.31%	Borger	17.19%
Cleburne	16.04%	Snyder	21.16%	Cleburne	16.63%
Freeport	15.57%	New Braunfels	15.19%	New Braunfels	16.59%
Gainesville	14.45%	Gainesville	13.91%	Greenville	16.56%
Mineral Wells	12.38%	Cleburne	10.00%	Denison	10.39%
Greenville	10.27%	Big Spring	8.83%	Snyder	3.96%
Denison	10.14%	Sweetwater	7.47%	Vernon	2.93%
Snyder	4.63%	Palestine	7.35%	Corsicana	1.76%
Big Spring	2.87%	Brownwood	1.52%	Big Spring	0.77%
New Braunfels	2.86%	Mineral Wells	0.00%	Plainview	0.00%
Palestine	0.52%	Vernon	-0.22%	Gainesville	-0.45%
Brownwood	-0.52%	Corsicana	-1.83%	Palestine	-3.91%
Plainview	-0.76%	Alice	-3.08%	Sweetwater	-12.22%
Corsicana	-0.93%	Greenville	-3.52%	Brownwood	-13.73%
Sweetwater	-5.87%	Plainview	-4.41%	Seguin	-15.53%
Lamesa	-8.96%	Bay City	-6.56%	Mineral Wells	-15.57%
Vernon	-9.50%	Seguin	-15.28%	Huntsville	-17.02%
Bay City	-10.06%	Huntsville	-18.68%	Lamesa	-21.65%

City	1972 Norm. FHI	City	1982 Norm. FHI	City	1992 Norm. FHI
Seguin	-17.50%	Beeville	-23.79%	Freeport	-24.29%
Huntsville	-19.98%	Uvalde	-29.03%	Uvalde	-38.17%
Alice	-22.87%	Eagle Pass	-85.84%	Eagle Pass	-86.97%
Uvalde	-29.85%	Brownfield	NA	Alice	NA
Beeville	-31.42%	Denison	NA	Bay City	NA
Eagle Pass	-60.84%	Freeport	NA	Beeville	NA
Brownfield	NA	Kingsville	NA	Brownfield	NA
Kingsville	NA	Lamesa	NA	Kingsville	NA

average quality (equivalent to the median city in 1992) to its residents. Based on this indexing, 13 cities in 1972 and 11 cities in 1992 would not be able to provide average service quality without external monetary aid. Clearly, the improvements in fiscal health (unadjusted: see Table 3-9A1) have not kept pace with the costs of providing services at a quality equivalent to the median city, in a given year.

Table 3-9A3 looks at the standardized (defined above) FHI of non-metro cities for the study period 1972-1992. The median city in 1972 has a standardized FHI = 0 and is assumed to have the baseline service quality, which has been defined in previous sections.

**TABLE 3-9A3: 1972 AND 1992 STANDARDIZED FISCAL HEALTH INDEXES, (STANDARDIZED USING 1972 MEDIAN), NON-METRO CITIES, RANKED IN DESCENDING ORDER**

City	1972 Std. FHI	City	1992 Std. FHI
Groves	29.59%	Groves	57.63%
Pampa	24.05%	Pampa	45.54%
Borger	19.47%	Borger	33.26%
Cleburne	16.04%	Cleburne	32.70%
Freeport	15.57%	New Braunfels	32.66%
Gainesville	14.45%	Greenville	32.63%

City	1972 Std. FHI	City	1992 Std. FHI
Mineral Wells	12.38%	Denison	26.46%
Greenville	10.27%	Snyder	20.03%
Denison	10.14%	Vernon	19.01%
Snyder	4.63%	Corsicana	17.83%
Big Spring	2.87%	Big Spring	16.84%
New Braunfels	2.86%	Plainview	16.07%
Palestine	0.52%	Gainesville	15.62%
Brownwood	-0.52%	Palestine	12.16%
Plainview	-0.76%	Sweetwater	3.86%
Corsicana	-0.93%	Brownwood	2.34%
Sweetwater	-5.87%	Seguin	0.54%
Lamesa	-8.96%	Mineral Wells	0.50%
Vernon	-9.50%	Huntsville	-0.95%
Bay City	-10.06%	Lamesa	-5.57%
Seguin	-17.50%	Freeport	-8.22%
Huntsville	-19.98%	Uvalde	-22.10%
Alice	-22.87%	Eagle Pass	-70.90%
Uvalde	-29.85%	Alice	NA
Beeville	-31.42%	Bay City	NA
Eagle Pass	-60.84%	Beeville	NA
Brownfield	NA	Brownfield	NA
Kingsville	NA	Kingsville	NA
<b>1972 MEDIAN</b>	<b>-17.42%</b>		

Thus, for example, Snyder city in 1992 would be able to provide *baseline service quality* (median city service quality in 1972) and still have 20.03% of its 1992 RRC left over for tax cuts or increased spending for improved services. Based on this criterion, 5 cities in 1992 were unable to provide services equivalent to the baseline service quality in 1972.

**Texas Non-Metro Counties: Tables 3-10A1 through 3-10A3** Table 3-10A1 shows the unadjusted FHI for non-metro counties in our study group. The non-metro counties' fiscal

health improved in the time span of our study period, 1972-1992, with the median FHI increasing from -22.73% in 1972 to -1.67% in 1992. The non-metro counties *relative* ranking mirrored that of their resident non-metro cities (see Table 3-9A1). Gray, Hutchinson, Johnson, Comal, and Hunt Counties were among the fiscally healthiest both in 1972 and 1992, just like their resident non-metro cities. The fiscally strongest counties were also, in general,

**TABLE 3-10A1: FISCAL HEALTH INDEXES, TEXAS NON-METRO COUNTIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

County	1972 FHI	County	1982 FHI	County	1992 FHI
Gray	6.11%	Hutchinson	54.97%	Gray	27.23%
Hutchinson	4.17%	Gray	46.02%	Brazoria	25.22%
Brazoria	-1.54%	Scurry	32.11%	Comal	24.95%
Johnson	-5.15%	Howard	24.64%	Hutchinson	17.77%
Palo Pinto	-5.88%	Comal	23.13%	Johnson	17.64%
Cooke	-7.54%	Nolan	18.77%	Wilbarger	15.01%
Comal	-12.37%	Johnson	16.55%	Hunt	11.76%
Howard	-14.24%	Cooke	16.14%	Cooke	10.24%
Scurry	-14.75%	Brazoria	15.49%	Guadalupe	7.47%
Brown	-17.21%	Terry	13.53%	Howard	5.26%
Hunt	-18.55%	Wilbarger	13.25%	Hale	5.23%
Wilbarger	-20.26%	Palo Pinto	7.31%	Scurry	3.32%
Nolan	-22.73%	Navarro	5.18%	Navarro	-1.67%
Navarro	-24.74%	Brown	3.68%	Palo Pinto	-5.20%
Hale	-25.27%	Hunt	2.41%	Walker	-5.21%
Guadalupe	-25.37%	Dawson	2.00%	Terry	-5.29%
Matagorda	-26.78%	Jim Wells	-0.14%	Nolan	-6.68%
Terry	-27.11%	Guadalupe	-2.37%	Anderson	-7.75%
Anderson	-28.90%	Hale	-2.89%	Brown	-8.32%
Dawson	-29.93%	Matagorda	-4.90%	Matagorda	-9.68%
Bee	-38.47%	Anderson	-7.14%	Dawson	-15.10%
Walker	-43.27%	Bee	-7.97%	Bee	-27.91%

County	1972 FHI	County	1982 FHI	County	1992 FHI
Jim Wells	-43.58%	Walker	-20.10%	Jim Wells	-35.81%
Uvalde	-46.83%	Uvalde	-24.30%	Uvalde	-36.66%
Maverick	-87.03%	Maverick	-105.48%	Maverick	-106.09%
Kleburg	NA	Kleburg	NA	Kleburg	NA
<b>MEAN</b>	<b>-22.73%</b>	<b>MEAN</b>	<b>4.80%</b>	<b>MEAN</b>	<b>-4.01%</b>
<b>MEDIAN</b>	<b>-22.73%</b>	<b>MEDIAN</b>	<b>5.18%</b>	<b>MEDIAN</b>	<b>-1.67%</b>
<b>STD DEV</b>	<b>19.45%</b>	<b>STD DEV</b>	<b>29.30%</b>	<b>STD DEV</b>	<b>27.43%</b>
<b>Min. Value</b>	<b>-87.03%</b>	<b>Min. Value</b>	<b>-105.48%</b>	<b>Min. Value</b>	<b>-106.09%</b>
<b>Max. Value</b>	<b>6.11%</b>	<b>Max. Value</b>	<b>54.97%</b>	<b>Max. Value</b>	<b>27.23%</b>

among the top in resident economic health (REH: see Table A-4) in both 1972 and 1992. Jim Wells, Maverick, Uvalde, Dawson, and Walker were fiscally the weakest counties in 1972, 1982, and 1992, similar to their constituent cities. These fiscally weak counties also had the lowest REH (see Table A-4) in both 1972 and 1992. The median FHI scores for non-metro counties have been consistently lower than the MSA cities, primarily because they are unable to generate any tax revenue from non-residents (export ratio=0 for non-metro counties).

Table 3-10A2 displays the normalized FHI of the non-metro counties. The counties maintain the same *relative* ranking as in Table 3-10A1. In 1992, Gray County would have 28.89% of its RRC left over for tax cuts or improvements in service quality *after* providing average service quality (equivalent to the median county in 1992) to its residents. Using this

**TABLE 3-10A2: NORMALIZED FISCAL HEALTH INDEXES, TEXAS NON-METRO COUNTIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

County	1972 Norm. FHI	County	1982 Norm. FHI	County	1992 Norm. FHI
Gray	28.84%	Hutchinson	49.78%	Gray	28.89%
Hutchinson	26.90%	Gray	40.84%	Brazoria	26.88%
Brazoria	21.19%	Scurry	26.93%	Comal	26.62%

County	1972 Norm. FHI	County	1982 Norm. FHI	County	1992 Norm. FHI
Johnson	17.58%	Howard	19.45%	Hutchinson	19.43%
Palo Pinto	16.85%	Comal	17.94%	Johnson	19.30%
Cooke	15.19%	Nolan	13.59%	Wilbarger	16.68%
Comal	10.36%	Johnson	11.37%	Hunt	13.42%
Howard	8.49%	Cooke	10.95%	Cooke	11.91%
Scurry	7.98%	Brazoria	10.31%	Guadalupe	9.14%
Brown	5.52%	Terry	8.35%	Howard	6.92%
Hunt	4.18%	Wilbarger	8.06%	Hale	6.89%
Wilbarger	2.47%	Palo Pinto	2.13%	Scurry	4.99%
Nolan	0.00%	Navarro	0.00%	Navarro	0.00%
Navarro	-2.01%	Brown	-1.50%	Palo Pinto	-3.53%
Hale	-2.54%	Hunt	-2.77%	Walker	-3.55%
Guadalupe	-2.64%	Dawson	-3.18%	Terry	-3.62%
Matagorda	-4.06%	Jim Wells	-5.33%	Nolan	-5.01%
Terry	-4.38%	Guadalupe	-7.56%	Anderson	-6.09%
Anderson	-6.17%	Hale	-8.08%	Brown	-6.66%
Dawson	-7.20%	Matagorda	-10.08%	Matagorda	-8.01%
Bee	-15.74%	Anderson	-12.32%	Dawson	-13.44%
Walker	-20.54%	Bee	-13.15%	Bee	-26.25%
Jim Wells	-20.85%	Walker	-25.29%	Jim Wells	-34.15%
Uvalde	-24.10%	Uvalde	-29.48%	Uvalde	-34.99%
Maverick	-64.30%	Maverick	-110.67%	Maverick	-104.42%
Kleburg	NA	Kleburg	NA	Kleburg	NA

yardstick, 12 counties in *both* 1972 and 1992 would not be able to provide average service quality without external financial assistance. Even though there has been a general improvement in the fiscal health of non-metro counties in Texas (see Table 3-10A1), it has not been sufficient to keep up with the costs of providing services at a quality level equivalent to that of the median non-metro county, in a given year.

Table 3-10A3 looks at the standardized FHI of non-metro counties in our group over the study period. The median county in 1972 would have a standardized FHI = 0 and is assumed to provide the baseline service quality. Therefore, in 1992, Maverick county would require external financial assistance equal to 83.36% of its 1992 RRC to provide baseline

**TABLE 3-10A3: 1972 AND 1992 STANDARDIZED FISCAL HEALTH INDEXES, (STANDARDIZED USING 1972 MEDIAN), NON-METRO COUNTIES, RANKED IN DESCENDING ORDER**

County	1972 Std. FHI	County	1992 Std. FHI
Gray	28.84%	Gray	49.96%
Hutchinson	26.90%	Brazoria	47.95%
Brazoria	21.19%	Comal	47.68%
Johnson	17.58%	Hutchinson	40.50%
Palo Pinto	16.85%	Johnson	40.37%
Cooke	15.19%	Wilbarger	37.74%
Comal	10.36%	Hunt	34.49%
Howard	8.49%	Cooke	32.97%
Scurry	7.98%	Guadalupe	30.20%
Brown	5.52%	Howard	27.99%
Hunt	4.18%	Hale	27.95%
Wilbarger	2.47%	Scurry	26.05%
Nolan	0.00%	Navarro	21.06%
Navarro	-2.01%	Palo Pinto	17.53%
Hale	-2.54%	Walker	17.52%
Guadalupe	-2.64%	Terry	17.44%
Matagorda	-4.06%	Nolan	16.05%
Terry	-4.38%	Anderson	14.98%
Anderson	-6.17%	Brown	14.41%
Dawson	-7.20%	Matagorda	13.05%
Bee	-15.74%	Dawson	7.63%
Walker	-20.54%	Bee	-5.18%

County	1972 Std. FHI	County	1992 Std. FHI
Jim Wells	-20.85%	Jim Wells	-13.08%
Uvalde	-24.10%	Uvalde	-13.93%
Maverick	-64.30%	Maverick	-83.36%
Kleburg	NA	Kleburg	NA
<b>1972 MEDIAN</b>	<b>-22.73%</b>		

service quality to its residents. Utilizing this reasoning, in 1992 four counties would be unable to provide service quality equivalent to the median county in 1972, while 21 counties would have funds left over after providing baseline service quality allowing them to afford a tax cut or increased spending on improving their service quality.

*Summary and Overview: FHI Scores for Texas Cities and Counties*

Four additional tables, 3-11 through 3-14, summarize the standardized FHI scores presented on Tables 3-7A-3, 3-8A-3, 3-9A-3, and 3-10A-3 for MSA cities, MSA counties, non-MSA (rural or non-metro) cities, and non-MSA counties, respectively. They present 1992 standardized FHI scores alongside 1970-1990 percent change in population and percent change in *real* per capita income (all PCI amounts are expressed in 1982 dollars; therefore, changes are in *real* and NOT *nominal* terms) from 1972 to 1992. The 53 cities are divided roughly into five quintiles based on their 1992 FHI scores. We also present simple correlation coefficients (Pearsons *r*) between FHI scores, percent population change, and real percent change in PCI.



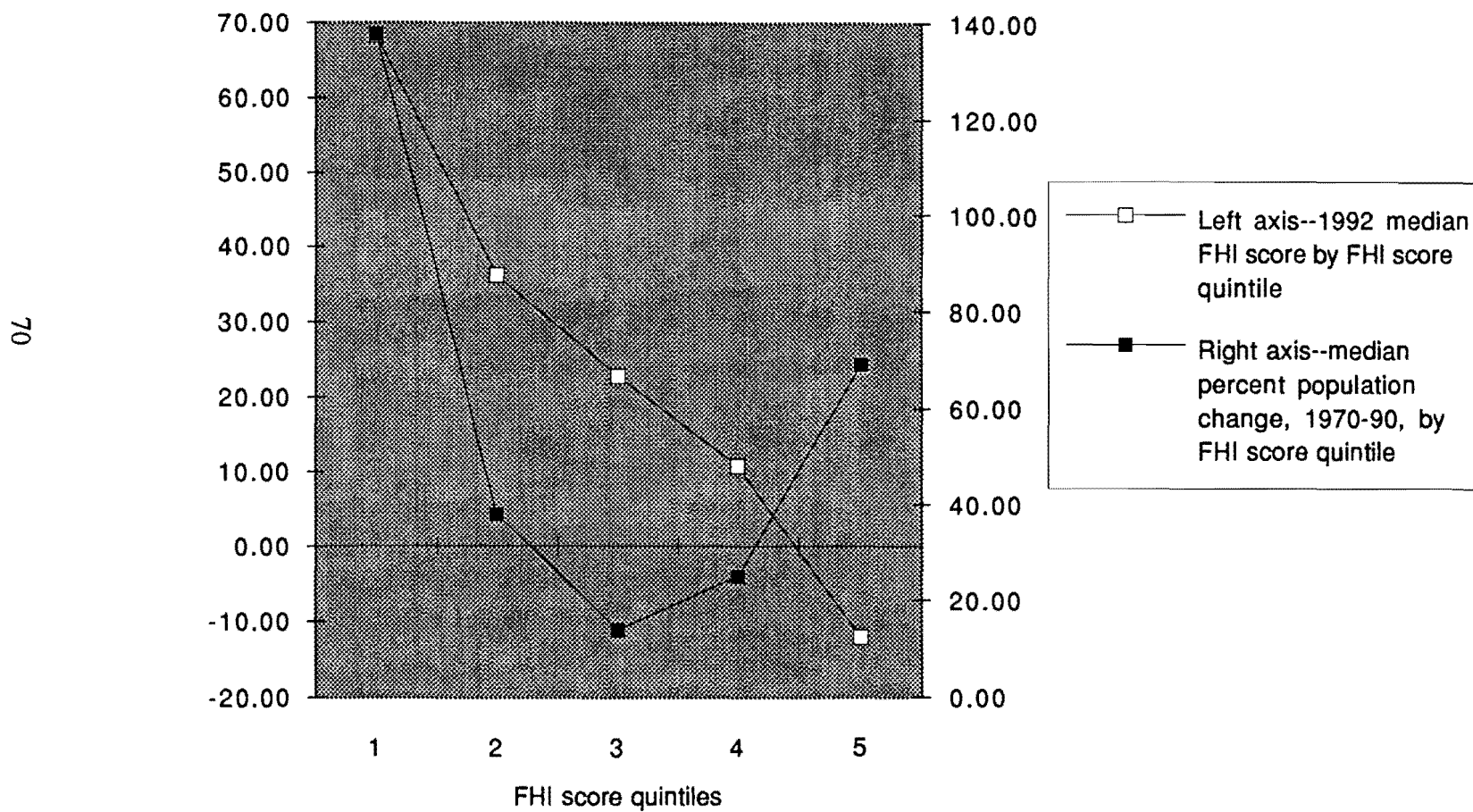
**Tables 3-11 and 3-12: Texas MSA and Non-MSA Cities** Table 3-11 shows that standardized FHI scores for 1992 are positively and statistically significantly correlated ( $p < .05$ ) with population change and per capita income change. Figures 3.1 and 3.2 graphically display these relationships. While their magnitude is roughly the same, their shapes are not. In Figure 3.1, population change maps a U-shaped relationship with FHI scores. Cities in Quintile 1 (with the highest FHI scores) also had the highest percentage of population change. This relationship remained positive and linear for cities in Quintiles 2 and 3--as population growth lessened, FHI scores fell. However, the relationship inverted for Quintiles 4 and 5; as population growth increased, FHI scores decreased. The U-shaped relationship is consistent with the patterns of population and PCI growth in Texas MSA cities we described earlier in this report: the fastest-growing populations have been in relatively affluent cities and in relatively poor cities of the Rio Grande Valley. Because high per capita income growth is also a characteristic of FHI scores in Quintile 1 (Figure 3.2), and much lower PCI growth occurred in Quintile 5, we assert again that new residents of the faster-growing cities in Quintile 1--particularly, as we have pointed out, those in the DFW CMSA--were much more affluent than those in the slower, but still fast-growing, cities of Quintile 5.

**TABLE 3-11: RELATIONSHIP BETWEEN STANDARDIZED FHI, POPULATION CHANGE, AND PER CAPITA INCOME CHANGE, MSA CITIES, RANKED BY STD. FHI, IN DESCENDING ORDER**

<b>CITY</b>	<b>1992 Standardized FHI Score</b>	<b>Population Change: 1970-1990 (Pct)</b>	<b>Per Capita Income Change: 1972-1992 (Pct)</b>
Richardson	106.31%	54.10%	83.7%
Plano	102.46%	620.00%	129.4%
Carrollton	82.83%	493.10%	112.2%
Duncanville	76.32%	153.40%	91.1%
Hurst	70.77%	23.40%	67.1%
North Richland Hills	65.92%	177.90%	54.0%
Irving	61.82%	59.40%	68.3%
Arlington	59.28%	190.70%	59.6%
Garland	58.04%	121.80%	63.7%
Mesquite	52.55%	84.10%	71.0%
Midland	48.29%	50.40%	64.5%
Dallas	47.80%	19.20%	58.2%
Grand Prairie	46.27%	95.70%	53.9%
Haltom City	36.41%	16.80%	30.8%
Pasadena	36.16%	33.70%	34.3%
Baytown	35.32%	45.20%	35.7%
Houston	32.17%	32.30%	51.3%
Temple	30.94%	37.90%	71.9%
Austin	30.93%	84.90%	71.1%
Sherman	29.07%	8.70%	58.2%
Texas City	28.17%	4.90%	55.1%
Fort Worth	27.66%	13.80%	46.0%
Denton	23.28%	66.20%	54.4%
Beaumont	22.88%	-2.70%	53.3%
Tyler	21.68%	30.60%	53.4%
Longview	20.92%	54.40%	60.4%
Amarillo	17.60%	24.10%	52.0%
Texarkana	15.03%	3.80%	57.2%

<b>CITY</b>	<b>1992 Standardized FHI Score</b>	<b>Population Change: 1970-1990 (Pct)</b>	<b>Per Capita Income Change: 1972-1992 (Pct)</b>
Bryan	14.61%	63.10%	59.8%
Galveston	13.14%	-4.40%	52.8%
Wichita Falls	12.01%	0.00%	46.8%
Odessa	11.91%	14.50%	42.0%
Abilene	10.88%	19.00%	66.7%
Victoria	10.74%	33.00%	80.0%
San Angelo	10.31%	32.20%	66.7%
Lubbock	9.33%	24.90%	57.0%
Corpus Christi	3.07%	25.90%	59.6%
San Antonio	1.08%	43.10%	61.3%
Killeen	-0.51%	78.90%	40.1%
Port Arthur	-8.05%	2.40%	39.4%
Waco	-8.25%	8.70%	39.4%
Harlingen	-8.47%	45.50%	72.6%
College Station	-15.62%	196.80%	13.6%
McAllen	-19.20%	123.20%	73.5%
El Paso	-22.90%	59.90%	44.2%
Laredo	-55.22%	78.10%	65.1%
Brownsville	-60.16%	88.40%	51.7%
Del Rio	NA	43.70%	46.8%
Edinburg	NA	74.20%	59.2%
Lufkin	NA	31.10%	66.6%
Mission	NA	119.70%	62.9%
Nacogdoches	NA	36.90%	38.9%
Paris	NA	5.40%	49.5%
<b>Correlation Coeff. versus Std. FHI:</b>		<b>0.43</b>	<b>0.51</b>

**Figure 3.1 The Relationship Between 1992 FHI Scores and 1970-1990 Population Change, Texas MSA cities**



**Figure 3.2 The Relationship Between 1992 FHI Scores and 1972-1992 Median Percent Change in Per Capita Income**

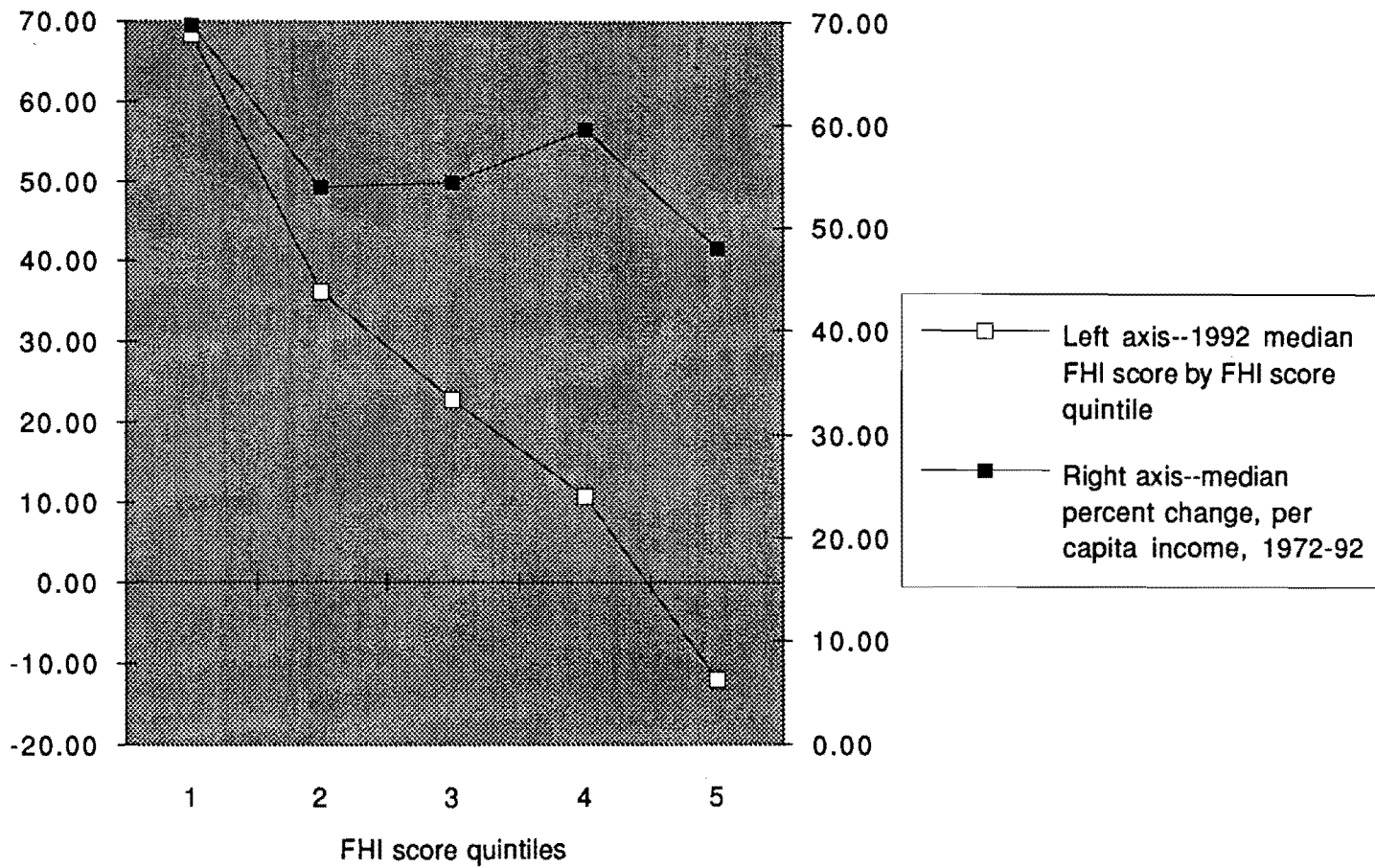


Table 3-12 shows that standardized FHI scores for non-metro cities in 1992 are *negatively* correlated with population change between 1970-1990 and *positively* correlated with per capita income change between 1972-1992. All but two of the cities which had a population decline saw their fiscal health improve over the period (see Tables 3-12 and 3-9A3). Unlike the MSA cities, it seems that dwindling rural populations (10 non-metro cities

**TABLE 3-12: RELATIONSHIP BETWEEN STANDARDIZED FHI, POPULATION CHANGE, AND PER CAPITA INCOME CHANGE, NON-METRO CITIES, RANKED BY STD. FHI, IN DESCENDING ORDER**

<b>CITY</b>	<b>1992 Standardized FHI Score</b>	<b>Population Change: 1970-1990 (Pct)</b>	<b>Per Capita Income Change: 1972-1992 (Pct)</b>
Groves	57.63%	-8.60%	55.1%
Pampa	45.54%	-12.70%	51.8%
Borger	33.26%	10.40%	39.9%
Cleburne	32.70%	38.70%	53.5%
New Braunfels	32.66%	52.80%	71.3%
Greenville	32.63%	4.70%	57.5%
Denison	26.46%	-13.70%	48.0%
Snyder	20.03%	9.20%	38.9%
Vernon	19.01%	4.80%	45.7%
Corsicana	17.83%	14.60%	51.4%
Big Spring	16.84%	-19.60%	38.6%
Plainview	16.07%	12.90%	36.0%
Gainesville	15.62%	3.10%	38.3%
Palestine	12.16%	24.20%	45.3%
Sweetwater	3.86%	-0.40%	40.1%
Brownwood	2.34%	5.90%	32.4%
Seguin	0.54%	18.30%	61.6%
Mineral Wells	0.50%	-19.40%	7.5%
Huntsville	-0.95%	58.60%	66.1%

<b>CITY</b>	<b>1992 Standardized FHI Score</b>	<b>Population Change: 1970-1990 (Pct)</b>	<b>Per Capita Income Change: 1972-1992 (Pct)</b>
Lamesa	-5.57%	-6.50%	21.0%
Freeport	-8.22%	-5.20%	12.9%
Uvalde	-22.10%	36.80%	53.7%
Eagle Pass	-70.90%	34.40%	67.3%
Alice	NA	-1.70%	49.4%
Bay City	NA	35.80%	78.9%
Beeville	NA	0.30%	51.2%
Brownfield	NA	NA	NA
Kingsville	NA	-12.60%	55.4%
<b>Correlation Coeff. versus Std. FHI:</b>		<b>-0.27</b>	<b>0.06</b>

in our group shrunk in population between 1970-1990) did not negatively affect the fiscal health of these cities, regardless of whether they were affluent or poor cities. Though PCI was positively related to fiscal health, it had a very weak correlation coefficient (.06), which was very unexpected.

In 1992, five non-metro cities had a negative standardized FHI as compared to nine MSA cities. This implies that 9 MSA and 5 non-metro cities in our group were unable to provide, even in 1992, baseline service quality to its residents (service quality equivalent to that of the median city in 1972). Not surprisingly, six of these nine MSA cities were in the Rio Grande or border regions of Texas and had the lowest PCIs in 1992 (see Table A-1). The five fiscally deficient non-metro cities were the poorest in terms of REH (PCI) in 1992 (see Table A-3). In relative terms, 19% of the MSA cities and 22% of the non-metro cities were fiscally deficient (had negative Std. FHI scores) in 1992. Another point to be noted is that non-metro cities did not have access to, in general, tax revenues from nonresidents (assumed export ratio=0).

**Tables 3-13 and 3-14: Texas MSA and Non-MSA Counties** Table 3-13 shows that standardized FHI scores for MSA counties in 1992 are positively correlated with both population change and PCI change. The positive relationships are very close to those observed in the case of their constituent MSA cities (see Table 3-11). The MSA counties show the same U-shaped relationship between population change percent and FHI scores, evident in the case of the MSA cities - the fast growing (populations) *affluent* counties saw their FHI improve significantly while the fast growing *poor* counties saw their FHI decline.

**TABLE 3-13: RELATIONSHIP BETWEEN STANDARDIZED FHI, POPULATION CHANGE, AND PER CAPITA INCOME CHANGE, MSA COUNTIES, RANKED BY STD. FHI, IN DESCENDING ORDER**

COUNTY	1992 Standardized FHI Score	Population Change: 1970-1990 (Pct)	Per Capita Income Change: 1972-1992 (Pct)
Collin	106.35%	294.60%	148.9%
Denton	75.86%	261.60%	185.6%
Randall	69.32%	66.40%	64.2%
Dallas	66.23%	39.60%	59.3%
Midland	56.82%	62.90%	59.1%
Harris	56.02%	61.80%	60.9%
Tarrant	53.39%	63.30%	64.7%
Travis	50.27%	95.10%	80.5%
Gregg	31.62%	38.20%	64.6%
Galveston	31.15%	28.00%	66.1%
Jefferson	29.82%	-2.20%	53.5%
Bowie	26.11%	20.40%	63.5%
Grayson	26.00%	14.20%	65.4%
Wichita	24.17%	1.80%	50.4%
Taylor	24.14%	22.30%	67.0%
Smith	24.03%	55.80%	66.3%
Coryell	23.95%	81.80%	50.2%
Bexar	22.63%	42.70%	65.0%



COUNTY	1992 Standardized FHI Score	Population Change: 1970-1990 (Pct)	Per Capita Income Change: 1972-1992 (Pct)
Victoria	20.99%	38.30%	87.7%
Potter	20.71%	8.10%	33.4%
Lubbock	20.18%	24.20%	58.4%
Bell	19.74%	53.50%	60.8%
Tom Green	18.93%	38.60%	55.5%
Ector	18.34%	29.60%	34.9%
Nueces	13.86%	22.60%	61.8%
McLennan	12.41%	28.20%	56.7%
Angelina	11.72%	41.60%	71.1%
Lamar	5.42%	21.90%	64.2%
Brazos	3.10%	110.20%	52.4%
Nacogdoches	-4.44%	50.50%	55.8%
Val Verde	-15.41%	41.00%	44.3%
El Paso	-16.46%	64.70%	40.3%
Webb	-48.96%	82.90%	57.1%
Cameron	-51.34%	85.30%	62.1%
Hidalgo	-66.63%	111.30%	60.5%
<b>Correlation Coeff. versus Std. FHI:</b>		<b>0.32</b>	<b>0.51</b>

There were 5 metro counties (14%) with a negative standardized FHI, although they all had a growth in population and an improvement in their resident economic health (PCI) in the two-decade study period. Most of these counties were in the Rio Grande and border areas of Texas and were among the poorest in REH (PCI) in 1992 (see Table A-2). Four of the seven most affluent counties were in the Dallas-Fort Worth area, and all had strong growth in population *and* PCI.

Table 3-14 shows that standardized FHI scores for non-metro counties are *negatively* correlated with population changes and *positively* correlated with PCI change. This relationship is similar to that observed in their constituent non-metro cities (see Table 3-12).

All the non-metro counties which shrunk in population size had an improvement in their fiscal health between 1972-1992 (see Tables 3-14 and 3-10A3). This was what was experienced by their non-metro cities and unlike the trend shown by the MSA counties. As in the case of their constituent cities, the decline in population (7 counties lost population between 1970-1990) did not adversely affect the fiscal health of these counties, regardless of whether they were affluent or poor counties. PCI was positively, and much more strongly, correlated (0.28 versus .06 for non-metro cities) than in the case of non-metro cities, with fiscal health. Fifteen percent (4 counties) of the non-metro counties were fiscally deficient (negative Std. FHI) as compared to 14% of the metro counties. These counties were the poorest in terms of REH (PCI) in 1992 (see Tables A-2, A-4). Non-metro counties, also, did not have access to tax revenue from nonresidents (export ratio assumed = 0).

**TABLE 3-14: RELATIONSHIP BETWEEN STANDARDIZED FHI, POPULATION CHANGE, AND PER CAPITA INCOME CHANGE, NON-METRO COUNTIES, RANKED BY STD. FHI, IN DESCENDING ORDER**

COUNTY	1992 Standardized FHI Score	Population Change: 1970-1990 (Pct)	Per Capita Income Change: 1972-1992 (Pct)
Gray	49.96%	-11.10%	50.3%
Brazoria	47.95%	77.00%	66.5%
Comal	47.68%	114.50%	90.7%
Hutchinson	40.50%	5.10%	41.7%
Johnson	40.37%	112.30%	59.1%
Wilbarger	37.74%	-1.50%	75.3%
Hunt	34.49%	34.10%	66.9%
Cooke	32.97%	31.10%	62.5%
Guadalupe	30.20%	93.30%	84.7%
Howard	27.99%	-14.40%	45.9%
Hale	27.95%	1.60%	67.5%
Scurry	26.05%	19.90%	42.5%
Navarro	21.06%	28.20%	58.4%

COUNTY	1992 Standardized FHI Score	Population Change: 1970-1990 (Pct)	Per Capita Income Change: 1972-1992 (Pct)
Palo Pinto	17.53%	-13.50%	25.1%
Walker	17.52%	83.90%	90.1%
Terry	17.44%	-5.90%	55.9%
Nolan	16.05%	2.30%	53.5%
Anderson	14.98%	72.80%	57.1%
Brown	14.41%	32.80%	46.4%
Matagorda	13.05%	32.30%	80.6%
Dawson	7.63%	-13.60%	37.0%
Bee	-5.18%	10.50%	53.5%
Jim Wells	-13.08%	14.10%	48.7%
Uvalde	-13.93%	34.50%	62.7%
Maverick	-83.36%	101.10%	45.0%
Kleberg	NA	-8.70%	60.0%
<b>Correlation Coeff. versus Std. FHI:</b>		<b>-0.10</b>	<b>0.28</b>

### 3.2.5 Fiscal Health Forecasts for Texas Cities and Counties: 1995 and 2000

The FHI projections (1995 and 2000) for cities and counties in Texas (those in our study group) are shown in Tables 3-15 through 3-18. These indexes were obtained by performing a simple linear regression of 1972, 1977, 1982, 1987, and 1992 FHIs, with year as the independent variable. The regression models generated predicted values of FHI for the years 1995 and 2000. It must be noted that the estimates are based on regressions which, in most cases, were not statistically significant.

In effect, we used the regression analyses to predict a straight line (yielded 1995 and 2000 FHIs) trend based on the best available information, i.e., our ACTUAL estimates of FHI 1972, 1977, 1982, 1987, and 1992. Tables 3-15 through 3-18 present FHI forecasts as 1995 and 2000 standardized scores with the 1972 median FHI being equal to zero. Refer to Section 3.2.4 for a discussion on standardized FHIs.

*Forecasts of Fiscal Health: Texas MSA and Non-Metro Cities (Tables 3-15 and 3-16)*

Table 3-15 shows the forecasts of standardized FHI scores for the MSA cities in our group. By comparing Tables 3-7A3 and 3-15, it becomes evident that most of the 20 fiscally healthiest cities (in top 2 Quintiles) in 1992 are expected to either improve their Std. FHI scores (12 cities, of which 9 were in the DFW area) or maintain their approximate current fiscal condition (6 cities).

**TABLE 3-15: FORECASTS OF STANDARDIZED FISCAL HEALTH INDEXES, MSA CITIES, 1995 AND 2000 (STANDARDIZED USING 1972 MEDIAN), RANKED IN DESCENDING ORDER**

City	1995 STD. FHI	City	2000 STD. FHI
Plano	108.97%	Plano	136.67%
Richardson	102.97%	Richardson	118.37%
Carrollton	89.77%	Carrollton	108.07%
Duncanville	85.16%	Duncanville	105.97%
North Richland Hills	75.29%	North Richland Hills	94.97%
Hurst	70.59%	Hurst	80.82%
Irving	59.32%	Irving	67.36%
Garland	54.99%	Garland	65.90%
Mesquite	52.84%	Mesquite	61.40%
Arlington	50.93%	Arlington	57.70%
Midland	44.18%	Midland	55.02%
Dallas	39.09%	Dallas	44.49%
Grand Prairie	35.55%	Grand Prairie	39.66%
Haltom City	30.82%	Temple	33.98%
Temple	27.42%	Haltom City	32.95%
Pasadena	26.95%	Houston	29.64%
Houston	25.61%	Austin	28.46%
Sherman	23.42%	Pasadena	27.87%
Baytown	22.05%	Sherman	27.16%
Austin	21.11%	Victoria	25.14%
Texas City	19.90%	Texas City	23.30%

City	1995 STD. FHI	City	2000 STD. FHI
Fort Worth	19.01%	Baytown	21.47%
Denton	17.92%	Fort Worth	20.50%
Amarillo	15.44%	Amarillo	20.29%
Beaumont	15.19%	Denton	20.01%
Tyler	14.59%	Beaumont	18.95%
Victoria	12.96%	Tyler	18.02%
Galveston	9.78%	Galveston	13.01%
Longview	8.80%	Odessa	13.00%
Odessa	8.50%	Longview	11.78%
Wichita Falls	5.05%	San Angelo	10.77%
Lubbock	4.65%	Lubbock	9.54%
San Angelo	4.56%	Bryan	8.56%
Texarkana	3.78%	Wichita Falls	8.31%
Bryan	3.67%	Abilene	7.26%
Abilene	3.30%	Texarkana	7.07%
Corpus Christi	-3.89%	Corpus Christi	-0.14%
San Antonio	-9.19%	San Antonio	-5.39%
Killeen	-11.33%	Harlingen	-7.61%
Waco	-13.85%	Killeen	-7.73%
Harlingen	-14.88%	Waco	-12.85%
Port Arthur	-16.25%	Port Arthur	-18.03%
McAllen	-27.90%	McAllen	-24.51%
El Paso	-34.63%	El Paso	-34.33%
College Station	-35.70%	College Station	-40.20%
Brownsville	-63.28%	Brownsville	-63.33%
Laredo	-71.77%	Laredo	-68.95%
Del Rio	NA	Del Rio	NA
Edinburg	NA	Edinburg	NA
Lufkin	NA	Lufkin	NA
Mission	NA	Mission	NA
Nacogdoches	NA	Nacogdoches	NA
Paris	NA	Paris	NA
<b>1972 MEDIAN</b>	<b>9.13%</b>		

Among the cities in Quintile 3, (refer to Tables 3-7A3 and 3-15) the moderately fiscally healthy cities, 5 of 10 cities are expected to deteriorate in fiscal health while 2 cities are expected to improve their fiscal health. The rest of the cities in Quintile 3 will more or less maintain their current fiscal condition. In the bottom two Quintiles (4, 5) which contain the fiscally weakest cities in 1992, barring 3 cities - San Angelo, Lubbock, and surprisingly, Harlingen - all the cities are expected to have a significant deterioration in their fiscal healths. Looking at Tables 3-7A3 and 3-15, one can observe that the relative ranking of the MSA cities is expected to stay more or less the same. This is partially an artifact of the regression procedure we use, and it empirically reflects what we have seen so far, i.e., the rich cities are getting richer while the poor cities continue to get poorer.

Table 3-16 shows the forecasts of standardized fiscal health indexes for the non-metro cities. Looking at Tables 3-9A3 and 3-16, we can see that most of the cities are expected to retain their relative rankings between 1992 and 2000. The cities in the top 2 Quartiles which

**TABLE 3-16: FORECASTS OF STANDARDIZED FISCAL HEALTH INDEXES, NON-METRO CITIES, 1995 AND 2000 (STANDARDIZED USING 1972 MEDIAN), RANKED IN DESCENDING ORDER**

City	1995 STD. FHI	City	2000 STD. FHI
Groves	60.16%	Groves	67.17%
Pampa	46.37%	Pampa	51.74%
Borger	37.50%	New Braunfels	43.17%
New Braunfels	35.71%	Borger	40.94%
Cleburne	29.84%	Cleburne	34.01%
Denison	28.91%	Denison	32.99%
Greenville	27.09%	Greenville	32.68%
Snyder	24.72%	Snyder	28.57%
Vernon	21.06%	Vernon	28.18%
Alice	18.75%	Alice	27.80%
Big Spring	18.04%	Big Spring	21.53%

City	1995 STD. FHI	City	2000 STD. FHI
Corsicana	16.66%	Corsicana	21.35%
Gainesville	14.86%	Plainview	18.22%
Plainview	14.01%	Palestine	16.59%
Palestine	13.68%	Gainesville	15.15%
Sweetwater	7.58%	Sweetwater	10.01%
Brownwood	2.41%	Seguin	4.92%
Seguin	0.42%	Huntsville	3.36%
Huntsville	-1.40%	Brownwood	3.13%
Mineral Wells	-3.99%	Lamesa	-4.22%
Lamesa	-5.07%	Bay City	-4.99%
Bay City	-5.89%	Mineral Wells	-6.96%
Freeport	-11.79%	Beeville	-14.80%
Beeville	-17.77%	Freeport	-17.74%
Uvalde	-22.52%	Uvalde	-20.59%
Eagle Pass	-79.58%	Eagle Pass	-82.18%
Brownfield	NA	Brownfield	NA
Kingsville	NA	Kingsville	NA
<b>1972 MEDIAN</b>	<b>-17.42%</b>		

had the highest Std. FHI scores in 1992 (see Table 3-9A3), are all expected to improve their fiscal health (see Table 3-16). Out of the 12 cities in Quartiles 3 and 4 (fiscally weakest cities) for which we had information available, 6 are expected to have a further deterioration in their fiscal condition, while 4 will improve their fiscal health, and 2 will approximately retain their current fiscal condition.

Amongst the MSA cities, (see Table 3-15) 43% of the cities for which we had information available were expected to experience a decline in standardized fiscal health by the year 2000, while 23% of the non-metro (see Table 3-16) cities are expected to see a deterioration in their fiscal condition. Twenty three percent of the MSA cities are expected

to have a *negative* standardized FHI score in 2000 as compared to 27% of the non-metro cities.

*Forecasts of Fiscal Health: Texas MSA and Non-Metro Counties (Tables 3-17 and 3-18)*

Table 3-17 shows the forecasts of standardized FHI scores for the metro-area counties (MSA counties) in our study group. Refer to Tables 3-8A3 and 3-17 for the discussion on MSA counties. By examining these tables, we can infer that all but 5 of the 35 MSA counties

**TABLE 3-17: FORECASTS OF STANDARDIZED FISCAL HEALTH INDEXES, MSA COUNTIES, 1995 AND 2000 (STANDARDIZED USING 1972 MEDIAN), RANKED IN DESCENDING ORDER**

<b>County</b>	<b>1995 STD. FHI</b>	<b>County</b>	<b>2000 STD. FHI</b>
Collin	114.45%	Collin	133.55%
Denton	85.04%	Denton	100.00%
Midland	79.95%	Midland	90.83%
Dallas	75.96%	Dallas	83.07%
Randall	73.88%	Randall	82.26%
Harris	70.12%	Harris	77.68%
Travis	59.21%	Travis	69.60%
Tarrant	55.77%	Tarrant	60.28%
Jefferson	41.43%	Victoria	46.38%
Gregg	40.54%	Gregg	46.24%
Galveston	40.16%	Galveston	46.12%
Victoria	36.81%	Jefferson	45.85%
Taylor	35.64%	Taylor	40.90%
Wichita	35.61%	Wichita	40.53%
Grayson	33.19%	Grayson	39.74%
Ector	32.53%	Smith	38.52%
Smith	32.51%	Tom Green	37.28%
Potter	32.11%	Ector	36.46%



County	1995 STD. FHI	County	2000 STD. FHI
Tom Green	31.11%	Bexar	36.18%
Bexar	29.64%	Bowie	35.16%
Bowie	29.51%	Lubbock	34.10%
Lubbock	28.12%	Potter	33.64%
Bell	27.01%	Bell	33.51%
Nueces	26.86%	Nueces	33.35%
Coryell	24.44%	Coryell	29.08%
McLennan	20.37%	McLennan	25.31%
Angelina	17.03%	Angelina	22.21%
Lamar	12.93%	Lamar	20.36%
Brazos	4.25%	Brazos	7.26%
Nacogdoches	0.70%	Nacogdoches	4.04%
Val Verde	-15.17%	Val Verde	-9.96%
El Paso	-16.08%	El Paso	-16.10%
Cameron	-45.02%	Cameron	-42.90%
Webb	-46.16%	Webb	-43.87%
Hidalgo	-63.29%	Hidalgo	-63.93%
<b>1972 MEDIAN</b>	<b>-8.75%</b>		

are expected to improve their fiscal healths between the years 1992 and 2000. The five MSA counties who will continue to be fiscally very weak are all in the Rio Grande or border regions of Texas. This is consistent with their status as counties with the lowest REH (PCI) in 1992 (see Table A-2) and their condition as the fiscally weakest in 1992 (see Table 3-8A3). Four of the top eight most fiscally prosperous MSA counties are expected to be from the DFW CMSA. Again, this is not unexpected considering that these counties were the richest in 1992 in terms of REH (PCI- see Table A-2) and also fiscally the strongest in 1992 (see Table 3-8A3).

Table 3-18 displays the forecasts of standardized fiscal health for the non-metro counties in our study group. Refer to Tables 3-10A3 and 3-18 for our discussion on non-metro counties. Looking at these tables, we can see that most of the counties are expected

**TABLE 3-18: FORECASTS OF STANDARDIZED FISCAL HEALTH INDEXES, NON-METRO COUNTIES, 1995 AND 2000 (STANDARDIZED USING 1972 MEDIAN), RANKED IN DESCENDING ORDER**

<b>County</b>	<b>1995 STD. FHI</b>	<b>County</b>	<b>2000 STD. FHI</b>
Gray	62.91%	Comal	68.22%
Comal	58.89%	Gray	68.19%
Hutchinson	57.20%	Hutchinson	60.60%
Brazoria	53.18%	Brazoria	59.87%
Wilbarger	48.32%	Wilbarger	57.14%
Johnson	47.22%	Johnson	52.92%
Scurry	41.37%	Hunt	48.55%
Hunt	40.97%	Scurry	45.89%
Howard	40.62%	Guadalupe	45.53%
Cooke	40.57%	Howard	45.49%
Guadalupe	37.32%	Cooke	45.01%
Hale	34.91%	Hale	42.53%
Navarro	30.65%	Navarro	36.42%
Terry	30.63%	Terry	36.08%
Nolan	29.62%	Walker	34.12%
Walker	24.60%	Nolan	33.63%
Palo Pinto	21.92%	Anderson	27.16%
Anderson	21.88%	Matagorda	24.34%
Brown	21.22%	Brown	23.44%
Matagorda	20.06%	Palo Pinto	22.09%
Dawson	18.02%	Dawson	21.73%
Bee	4.81%	Bee	7.45%
Jim Wells	1.26%	Jim Wells	3.21%

County	1995 STD. FHI	County	2000 STD. FHI
Uvalde	-6.59%	Uvalde	-4.05%
Maverick	-89.17%	Maverick	-93.97%
Kleburg	NA	Kleburg	NA
<b>1972 MEDIAN</b>	<b>-22.73%</b>		

to maintain their relative rankings between 1992 and 2000. *Surprisingly*, all but 2 of the counties are expected to witness an improvement in their fiscal healths. These counties - Uvalde and Maverick - have consistently been the poorest in terms of REH (PCI: see Table A-4) and weakest in fiscal health (see Table 3-10A3). The richest counties in terms of REH and Std. FHI scores in 1992 - Comal, Gray, Hutchinson, Brazoria, Wilbarger, and Johnson - are likely to have the strongest fiscal condition in 2000. Palo Pinto and Bee counties, unlike their constituent cities - Mineral Wells and Beeville - are expected to see an improvement in their fiscal health.

Among the MSA counties, 86% are expected to see a *strengthening* in their fiscal condition as compared to 92% of the non-metro counties. Fourteen percent of MSA counties and 8% of non-metro counties are expected to have a *negative* standardized FHI score in 2000.

## **4.0 CORRELATING FISCAL HEALTH, LOCAL ROAD AND STREET EXPENDITURES, AND LOCAL ROAD AND STREET CONDITIONS**

The goal of this study, of course, is not merely to examine the fiscal health of Texas cities and counties, but to correlate changes in fiscal health with local spending on roads and streets and, in turn, with local road and street conditions. In this, we confronted several data constraints. These stemmed not from insufficient financial data, i.e., local road and street expenditures, but almost exclusively from lack of adequate data on local street, road, and bridge conditions for the metro counties, non-metro cities, and counties in our study group. For this reason, in the analyses that follow, we limit our study group to the 53 MSA cities.

### **4.1 MSA CITY TRANSPORTATION SPENDING PRIORITIES AND MEASURES OF ROADWAY SPENDING: EVIDENCE FROM INTERVIEWS**

The next step in this analysis was to designate a set of valid measures of local road and street spending that could be reliably compared across jurisdictions. In this process, we relied upon information from a set of 36 interviews with MSA city road and street officials across the state. These focused--among other things--on local transportation spending patterns and priorities and measures of roadway spending that could be reliably compared across jurisdictions in our study.<sup>6</sup> In the interviews, local transportation officials provided valuable

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<sup>6</sup>Prior to our in-person interviews, we conducted an extensive mail survey of transportation officials around the state to more precisely quantify the shortfalls in road maintenance funding at the local level. The results of this survey were not satisfactory, however. In most cases, local transportation officials were not able to usefully quantify the extent to which local funding was adequate or inadequate for road maintenance needs, or to provide information on the actual extent of the road mileage for which their departments were responsible. In small localities as well as in some larger ones (e.g., Fort Worth), this inability stemmed from the absence of an effective pavement management system (PMS). Appendix B contains two tables (Tables B-1 and B-2), one each for metropolitan and non-metropolitan cities, summarizing the results of a follow-up survey we conducted to determine which cities did and did not have a PMS in place at the time of our initial survey.

In other cases, responses to the survey were unusable because respondents failed to understand questions that asked them to report the extent to which local funding was adequate or inadequate for annual road maintenance needs. From this standpoint, it appears that these questions, as they appeared on the instrument used in the survey, were not reliable, i.e., not understood in the same way across the universe of respondents. Appendix B (Tables B-3

anecdotal evidence on three critical issues.<sup>7</sup> MSA city road and street officials told us the following:

(1) Their principal sources of road and street funding were from city and county general budgets and bond issues. All spending for road and street maintenance came from general funds, and the vast bulk of spending for construction of new roads came from bond issues. Impact fees were also widespread and, in many cases, developers paid for constructing roads in new housing subdivisions.

(2) In large metropolitan areas, major roads are also state and federally maintained highways, thus relieving local authorities of the responsibility of maintaining them. In smaller metro areas, TxDOT District Engineers were often asked to participate in local road and street projects.<sup>8</sup>

(3) Since outside monies were available in the form of bond issues, state and federal funds, and fees from developers, and these were used almost exclusively for new road construction, the unanimous priority of local street and road departments was to apply locally raised revenue to maintain existing roads and new roads added to their networks in the recent past. While some officials expressed concern about funding for capacity improvements and new roadways, it was in the area of road maintenance that they expressed the most concern about the adequacy of local funding.

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to B-7) contains a copy of the survey instrument and a tabular summary of the results, including those responses that were partially complete.

<sup>7</sup>We have provided abstracts and actual transcripts of these interviews in Appendix F.

<sup>8</sup>In Abilene, for example, officials told us that state highway funds have been used for paving while the city paid for rights-of-way, gutters, and curbs. City road officials in Corpus Christi also noted a high level of operational and fiscal cooperation between themselves and TxDOT District officials. Dallas and Harris city and county officials also cooperated with TxDOT on a wide variety of road projects.

In addition to testing the relationship of FHI to street construction expenditures, one of the original goals of this study, we decided to focus first on testing the link between fiscal health and local street and road conditions through the former's relationship to road maintenance expenditures. Our FHI is a measure of the structural economic capacity of a locality to raise revenue from sources *inside its boundaries*. The conditions of local roads and streets are largely, if not entirely, dependent on local maintenance expenditures. Because this spending depends on disbursements from locally raised general funds, it is directly dependent on the fiscal health of a given jurisdiction. Just as important, spending on road maintenance has in recent years come to be regarded by transportation practitioners as an efficient use of public revenue. Transportation department officials at all levels now believe that effective roadway maintenance can postpone or render unnecessary the much more costly reconstruction of roads and highways. Maintenance expenditures are, therefore, a crucial link to local road conditions.

#### **4.2 FISCAL HEALTH AS A DETERMINANT OF MSA CITY ROAD AND STREET MAINTENANCE AND CONSTRUCTION EXPENDITURES**

With these considerations in mind, we chose the following measures as dependent variables in our analysis of the influence of fiscal health--as measured by our fiscal health index--on spending for MSA city road and street maintenance and construction: **maintenance expenditures per capita, per road-kilometer maintained, and per vehicle registered**; and **construction expenditures per capita, per road-kilometer of local streets, and per vehicle registered** in each jurisdiction for which we had these data. We used these dependent variables in univariate and bivariate regression analyses on the FHI scores of the MSA cities in our study group. We analyzed the FHI scores only for MSA cities because we needed to cross reference these findings to our analyses involving road and street expenditure measures and bridge conditions (proxy for road conditions). The analyses of road and street expenditure measures with respect to bridge conditions (see Section 4.3) was carried out only

for MSA cities due to data limitations which prevented us from analyzing metro-area counties and non-metro counties and non-metro cities.

The regressions of FHI scores on street maintenance/construction expenditures tested the hypothesis that cities in poor fiscal health will not have enough locally raised revenues to meet these needs and will, therefore, spend less on road and street maintenance/construction. If a city's fiscal health index is significantly related to a city's road and street maintenance/construction expenditures, and expenditures, in turn, are related to street conditions, then we can explain at least part of the condition of a city's roads and streets in terms of its fiscal health. We directly test the relationship between expenditures and street conditions in the next section (Section 4.3) of this report, below.

Table 4-1 displays the results from the regression models of fiscal health scores on MSA city road maintenance and construction expenditures. The data used was for MSA

**TABLE 4-1: REGRESSION RESULTS- MSA CITY ROAD AND STREET SPENDING AS A FUNCTION OF CITY FISCAL HEALTH**

<b>Dependent Variable</b>	<b>Adj. R-square (F-value/ Prob &gt;F)</b>	<b>Independent Variable</b>	<b>Regression Coefficients/ (Standard Error)</b>	<b>T-statistic</b>
<b>PCCONEXP</b>	0.1173 (6.978/.0002)***	<b>DUMMY87</b>	-1.2773/(5.2077)	-0.245
		<b>DUMMY92</b>	-18.4701/(5.3919)	-3.426***
		<b>FSCLHLTH</b>	0.2567/(.0683)	3.761***
<b>PCMNTEXP</b>	.0944 (5.689/.0011)***	<b>DUMMY87</b>	-3.5367/(1.6044)	-2.204**
		<b>DUMMY92</b>	-2.1372/(1.6612)	-1.287
		<b>FSCLHLTH</b>	.0684/(.0210)	3.255***
<b>PCTOTEXP</b>	.1648 (9.877/.0001)***	<b>DUMMY87</b>	-4.8141/(5.1594)	-0.933
		<b>DUMMY92</b>	-20.6073/(5.3418)	-3.858***
		<b>FSCLHLTH</b>	.3251/(.0676)	4.809***

\* Significant at p-value = .10

\*\* Significant at p-value = .05

\*\*\* Significant at p-value = .01

cities for 1982, 1987, and 1992, the years for which the most expenditure data for the most jurisdictions were available. The data used in the analysis of Table 4-1 is shown in Tables C-1 through C-3. The total sample size was 153--a cross-section of 51 cities per year, so that  $n=153$ . In addition to fiscal health scores as an independent variable, we included two dummy variables for 1987 and 1992, with 1982 as the reference category [ $n (= 3$  years of cross-section data) - 1 (the reference year, or 1982) = 2 dummies], and an intercept term.

As we expected, the results show very strong and statistically significant relationships between fiscal health scores and city expenditures on road and street maintenance and construction. FHI scores (**FSCLHLTH**) were significantly ( $p < .05$ ) and positively related to per capita construction expenditures (**PCCONEXP**), per capita maintenance expenditures (**PCMNTEXP**), and per capita total expenditures (**PCTOTEXP**). They explained about 12% (= an adjusted R-square of .117) of the cross-jurisdiction variation in per capita construction spending over the 1982 to 1992 period, about 9% of variation in the per capita maintenance spending, and, since total spending is a linear combination of maintenance plus construction, about 16.5%--roughly equal to the sum of the adjusted R-squares for the two other regression models--of variation in per capita total spending.

The dummy variables also show an interesting pattern. In the case of **PCCONEXP**, they are interpreted as the mean difference by city in per capita construction expenditures in 1992 relative to 1982 expenditures. On average, cities spent 18.5 dollars per capita less in 1992 on construction than they did in 1982. This relationship was significant at the .01 level. For **PCMNTEXP**, cities spent, on average, 3.53 dollars per capita less in 1987 on maintenance than they did in 1982. This relationship was significant at the .05 level. Finally, for **PCTOTEXP** (total expenditures)--and, again, since total spending is a linear combination of maintenance and construction--cities spent on average 20.6 dollars less per capita (a total roughly equal to the amounts in the previous two regressions) in 1992 than in 1982. This was significant at the .01 level. We attribute this finding to growing populations in all Texas MSA cities and an inability by Texas cities to maintain per capita expenditures at constant levels.



This is consistent with the general inability of municipalities all over the U.S., in almost every expenditure category, to keep up pace with spending required to match local population growth.

These findings are interesting and useful for this study. First, FHI is a critical, statistically significant predictor of local transportation spending. Second, the fact that it explained between 10 and 15% of the variation is both a measure of the strength of this variable by itself in determining spending across jurisdictions over a ten-year period, but also that a host of other factors outside the structural determinants of fiscal health are causing--or are related to in an approximate causal manner--the rest of the variation. Specifically, if the structural (economic and demographic) factors captured in the fiscal health index explain, at most, 15% of the variation between cities in local road and street expenditures, then after the variation due to differences in local taxing and spending preferences and priorities is subtracted, it is likely that some room exists for policy interventions that will improve prospects for local roads and streets. We discuss this aspect of our findings more fully when we estimate non-local revenue that cities and counties may require now and in the next five years to maintain streets in adequate condition (Section 4.5, below), and in our policy recommendations to TxDOT (Section 5.0).

Third, we note that our regression analysis predicts that the mean difference in total road and street spending by city in 1992 is significantly (in both a statistical and absolute sense) lower than in 1982. Again, this appears largely to be an artifact of population growth. All across the country, and in Texas as well, population growth is out pacing all categories of city expenditures, including road and street spending.

### **4.3 ROAD AND STREET MAINTENANCE/CONSTRUCTION EXPENDITURES AS DETERMINANTS OF MSA CITY ROAD AND STREET CONDITIONS**

Subsequent to testing the predictive power of fiscal health indices on MSA city road and street maintenance/construction spending, we tested the effects of road and street maintenance/construction spending on the conditions of local roads and streets.

#### **4.3.1 Measures of Roadway Conditions**

The study needed some reliable measures of roadway condition which would be consistent over time and comparable across cities. This measure would allow us to compare roadway conditions prevalent in our selected cities. Then, we would test the relationship between roadway conditions existing in our cities and the measures of city road and street expenditure.

#### *Data Sources*

We examined a variety of sources for reliable data on road and street conditions. The sources we checked included HPMS and RI-2T data. After a detailed analysis of this data, we found it to be unsuitable for our requirements.

The HPMS data on pavement conditions was by SMSAs and was not useful to us because we needed pavement conditions in individual cities. The RI-2T tables had the data broken up by individual city; however, the sample of roads for each city were not large enough to be representative of the general condition of roads and streets in that city.

It must be noted that we were interested in roads and streets which were, at least partially, maintained by local city governments. We tried obtaining information on road conditions from local sources through our mail-out survey and interviews. Most cities did

not keep such data, especially because most of them did not have a pavement management system in place. Thus, in the absence of any reliable, consistent, and comparable direct measures of local roadway conditions, we decided to use data on bridge conditions as a proxy. We obtained this data from TxDOT's Bridge Inventory, Inspection, and Appraisal Program (BRINSAP).

#### **4.3.2 Description of Measures Chosen for Analysis and Rationale for Their Use**

The bridge condition data we obtained from TxDOT's BRINSAP program were very exhaustive. We utilized the Off-System data which contained bridge condition ratings for bridges which were at least partially maintained (funded) by local city governments. We were interested only in such bridges because we wanted to examine the relationship between local road conditions and city road/street expenditure. Based on information described in Section 4.3.1, we thought that the condition of bridges was the best available proxy for the condition of roads and streets in that city. Our analysis includes only bridge condition data for the metro-area cities (MSA cities) in our study group, primarily because this was the only group for which we had sufficient information to support our analyses, in each of the years 1982, 1987, and 1992.

For the purposes of our study, we chose 4 indicators of bridge conditions. The BRINSAP data listed all the bridges in a given city. We extracted data on the number of bridges in *obsolete* condition, number of bridges in *deficient* condition, and the number of bridges in *good* condition. We also extracted the *sufficiency rating* of all the bridges in a given city. For the sake of comparison across cities, we computed, based on the extracted data, the average sufficiency rating of all bridges in the city, as well as the percentage of bridges in deficient, obsolete, and good condition. For the actual bridge data we computed from BRINSAP, please refer to Tables B-8, B-9 and B-10. Table B-8 contains bridge condition information for all the cities in 1982, while Table B-9 contains 1989 data and B-10 contains 1992 data. We used this data in our regression analyses to test the relationship

between city road/ street expenditure and its bridge conditions. We used 1989 data as a substitute for 1987 bridge conditions because it was a more extensive sample and would enhance the statistical quality of our analysis.

The 4 parameters of bridge condition we chose were the most appropriate for our study. The average sufficiency rating of bridges is a good indicator of condition, primarily because it is derived from a very large number of component factors. The sufficiency rating of a bridge is an all-inclusive indicator of the bridge's condition derived from many technical parameters. Also, federal and state governments make bridge repair/reconstruction funding decisions based on this rating. If a bridge's rating is 80-100, then, the bridge is considered to be in good condition and is not entitled to funding. If the rating is 50-80, *rehab* work will be partially funded by the federal government. If the rating is below 50, then, the bridge requires *reconstruction*, which is eligible for partial federal funding. Thus, the average sufficiency rating is a good indicator of the condition of a city's bridges, as well as in determining whether the city will be eligible for/require external funding to maintain its bridges.

The other three parameters, i.e., percent of bridges in deficient, obsolete, and good condition (**Percent Deficient**, **Percent Obsolete**, and **Percent Good** in Tables B-8, 9, 10) are a good representation of the general condition of bridges in a city. An obsolete bridge is structurally sound but is unsuitable for current traffic needs (for example: bridge may be narrower than the roadways on either end, may have line-of-sight problems or may be ill-equipped to handle the volume of traffic). A deficient bridge, on the other hand, may be structurally weak or in poor condition which imposes traffic/loading restrictions on it. Such a bridge is usable but requires some modifications or reconstruction work. A bridge in good condition is in perfect working condition and requires no rework on its structure.

All these 4 measures of bridge condition give a clear picture of a city's bridge conditions. Because we compute average values and percentages of these 4 measures, they are suitable for our analysis due to their comparability across cities and over time.

### 4.3.3 Regression Analyses of Effects of Road and Street Expenditures on Bridge Conditions

We carried out three regression analyses that examined the extent and strength of the relationship between the measures of road and street expenditures that were significantly related to FHI scores--in Section 4.2, above, i.e., per capita construction expenditures (**PCCONEXP**), per capita maintenance expenditures (**PCMNTEXP**), and per capita total expenditures (**PCTOTEXP**)--and city bridge conditions. We hypothesized that a given city's road and street maintenance and construction spending will be positively related to bridge conditions within its jurisdiction. The data used in the analysis of Table 4-2 can be seen in Tables C-4 to C-6.

As discussed earlier, the BRINSAP data categorizes bridges in a given city as being in *good*, *deficient*, or *obsolete* condition. We took the percentage of a given city's bridges in each class and defined three dependent variables--**PCT\_GOOD** (percent of bridges in good condition), **PCT\_DEF** (percent of bridges in deficient condition), and **PCT\_OBS** (percent of bridges in obsolete condition). We also analyzed the impact of a city's road and street spending on the Average Sufficiency Rating (**AVG\_SR**) of its bridges. As in the earlier regressions of road and street expenditures on fiscal health, we included two dummy variables (**DUMMY87**, **DUMMY92**) for 1987 and 1992 (again, with 1982 as the reference year) and an intercept term.

Our initial analyses using per capita and per-vehicle registration measures of total, construction, and maintenance spending as independent variables were not satisfactory. Statistical relationships were weak and unstable. We should also note that in no case were any of these variables significantly related to **PCT\_GOOD**, i.e., the percentage of a city's bridges in good condition. We do not report these regression results.

We, therefore, substituted slightly different measures of road and street spending: **construction, maintenance, and total spending per road-kilometer** for which each city was responsible. We obtained this data for the MSA cities in our study group through the in-person interview process described earlier (Section 4.1, above), and through follow-up calls to local transportation department officials to whom we administered the mail survey in the early stages of this research (also discussed in Section 4.1, above).

As shown in Table 4-2, these measures proved to be strong predictors of **bad** bridge conditions, i.e., **PCT\_DEF** (percent deficient) and **PCT\_OBS** (percent obsolete), but not of

**TABLE 4-2: REGRESSION RESULTS-BRIDGE CONDITIONS AS A FUNCTION OF CITY ROAD AND STREET SPENDING**

Dependent Variable	Adj. R-square (F-value/ Prob >F)	Independent Variable	Regression Coefficients/ (Standard Error)	T-statistic
<b>AVG_SR</b>	.0670 (2.239/.0744)*	<b>DUMMY87</b>	.7704/(2.6556)	0.290
		<b>DUMMY92</b>	3.9787/(2.6579)	1.497
		<b>CONEXPKM</b>	5.2200/(2.9296)	1.783*
		<b>MNTEXPKM</b>	28.5500/(13.4521)	2.123**
<b>PCT_DEF</b>	.1098 (3.836/.0135)**	<b>DUMMY87</b>	-.0564/(.0372)	-1.517
		<b>DUMMY92</b>	-.1036/(.0373)	-2.779***
		<b>CONEXPKM</b>	-.0988/(.0405)	-2.438**
<b>PCT_DEF</b>	.1126 (3.920/.0123)**	<b>DUMMY87</b>	-.0583/(.0371)	-1.573
		<b>DUMMY92</b>	-.1019/(.0370)	-2.751***
		<b>TOTEXPKM</b>	-.1021/(.0411)	-2.485**
<b>PCT_OBS</b>	.0597 (2.459/.0705)*	<b>DUMMY87</b>	.0475/(.0605)	0.785
		<b>DUMMY92</b>	.0697/(.0594)	1.172
		<b>MNTEXPKM</b>	-.7466/(.3016)	-2.475**

\* Significant at p-value = .10  
 \*\* Significant at p-value = .05  
 \*\*\* Significant at p-value = .01

bridges in good condition. As with the per capita spending measures, in no instances were the spending per road-kilometer measures significantly related to **PCT\_GOOD**. On the other hand, as expected, **construction, maintenance, and total spending per road-kilometer** were all negatively related to bad bridge conditions. For the MSA cities in 1982, 1987, and 1992, as construction, maintenance, and total spending increased by increments of \$10,000 per road kilometer, respectively, the percent of bridges in *deficient* condition decreased by 9.9% (-.0988, **CONEXPKM**); in *obsolete* condition decreased by 75%(-.7466, **MNTEXPKM**); and, again, in *deficient* condition decreased by 10.2% (-.1021, **TOTEXPKM**). These relationships were all significant at the 5% level ( $p < .05$ ). In the cases of construction and total expenditures per road kilometer, the dummy variable for 1992 was also negative and statistically significant, and of virtually the same magnitude. This indicated that on average, in 1992, there were about 10% fewer (-.1036 and -.1019) deficient bridges in each city than in 1982.

Table 4-2 also reveals a positive relationship between spending on roads and streets and the average sufficiency rating of city bridges. For every extra \$10,000 per road kilometer, spent on construction (**CONEXPKM**) by a city, the average sufficiency rating of its bridges (**AVG\_SR**) increased by 5.2 points, and for every \$10,000 per road kilometer spent on maintenance (**MNTEXPKM**), the average sufficiency rating (**AVG\_SR**) went up by 28.6 points. This clearly indicates that a city can exert a positive influence on the condition of its bridges, and by extension on its roads/streets, through increased spending on construction and, more importantly, on maintenance activities.

#### **4.4 SUMMARY OF FINDINGS (SECTIONS 4.2 AND 4.3): FISCAL HEALTH, CITY ROAD AND STREET EXPENDITURES, AND CITY BRIDGE CONDITIONS (AS A PROXY FOR ROAD CONDITIONS)**

We summarize our findings from the two previous sections as follows. First, our FHI is an important, statistically significant determinant of MSA city transportation spending.

Given that it explained between 10 and 15% of the variation in spending, we also infer that other factors--including the possibility of policy intervention--in addition to the structural ones captured by fiscal health cause, or are related to, the rest of the variation in city road and street spending. Using city bridge conditions as a proxy for road and street conditions, we then linked fiscal health to the latter through road and street expenditures. Each \$10,000 increase in construction, maintenance, and total expenditures per road-kilometer resulted in statistically significant decreases in the percentage of deficient or obsolete bridges in a given MSA city. Increases in maintenance spending were associated with the greatest decreases in the percentage of *bad* bridges. We also saw a positive and statistically significant relationship between increased spending on construction and maintenance activities and the average sufficiency rating of its bridges. Thus, a city can clearly exert a positive influence on the condition of its bridges, and by extension on its roads/streets, through increased spending on construction and, more importantly, on maintenance activities. We assume that these relationships between FHI, local road and street spending, and local road/street and bridge conditions, observed in the case of MSA cities, also exist in the case of counties and non-metro cities.

These findings serve as useful estimates of the magnitude of the relationship between fiscal health and city/county street conditions in Texas over the last decade. They also link the fiscal, economic, and transportation issues that lie at the heart of the problem upon which this analysis focuses: if fiscal health is related to city/county street conditions through city/county street expenditures, have there been expenditure shortfalls that might be causing city/county roads and streets to deteriorate? Using city and county (both MSA and non-MSA) scores on the fiscal health index, we next estimate the levels of underspending and overspending on roads and streets by cities and counties for 1972, 1982, 1992, and forecast under- and overspending for the years 1995 and 2000.



#### 4.5 ESTIMATES OF NON-LOCAL REVENUE REQUIRED TO MAINTAIN LOCAL STREETS AND ROADS IN ACCEPTABLE CONDITION

We have linked fiscal health statistically with road and street expenditures and conditions. We will now use city and county FHI scores in an analytical procedure developed by the authors to estimate levels of underspending and overspending on local roads and streets. The structure of the FHI itself--expressed as the percentage of a given jurisdiction's RRC that a city/county might need in non-local revenue assistance (for cities/counties with negative scores) to provide baseline service quality--lends itself well to this exercise. It allows us to determine which cities/counties likely needed, and will likely need, outside financial assistance to maintain their streets in *acceptable* or adequate condition. In turn, this will provide a useful benchmark for TxDOT planners in their process of determining which cities/counties are to be provided with state aid for local street construction, rehabilitation, and/or capacity expansion.

It is important to note that just as FHI explained "only" about 15% of the variation in street and road expenditures, the simple correlation between FHI scores and the under and overspending amounts reported on Tables 4-3 through 4-7 by the jurisdictions in our study group (53 MSA/28 non-metro cities and 35 MSA/26 non-metro counties)<sup>9</sup> was relatively weak, i.e., 0.1625 for the MSA cities (statistically significant at the 5% level, p-value < .05) and 0.1792 for the MSA counties (statistically significant at the 10% level, p-value < .10). Our use of city and county FHI scores in the algorithm (presented below) for calculating

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<sup>9</sup> We examined the correlation, if any, between various measures of a city or county's FHI and the amount it over or underspent on its roads and streets. For FHI, the measures analyzed included: **Actual FHI**, **Normalized FHI**, **Actual FHI Flag** ("+" if positive index and "-" if negative index), and **Normalized FHI Flag** ("+" if positive index and "-" if negative index). For amount over or underspent, the measures analyzed included: **Over/under** (the dollar amount over or under spent by a city/county on its roads and streets) and **Over Under Flag** ("+" if overspent and "-" if underspent). These measures were analyzed through correlation analysis, separately, for the MSA cities, non-metro cities, MSA counties, and non-metro counties, for the various years for which data was available. The strongest correlations were 0.1625 for MSA cities (significant at p-value of .05) and 0.1792 for MSA counties (significant at p-value of .10). Non-metro cities and counties did not show any statistically significant correlations between FHI and over/under spending measures.

under and overspending therefore allows us to calibrate these estimates, but does not strictly determine them.

This relatively weak correlation confirms the earlier finding that factors outside the structural parameters captured in our fiscal health index were determinants of spending levels and their adequacy for keeping local roadways in good condition. Among these, of course, are local taxing and spending preferences and priorities, which may be determined by the political philosophies and socio-economic status of politically active city/county residents; and the availability of street, road and bridge funds either from federal, state, or local sources (e.g., impact fees on new developments and/or bond issues). We return to this issue in Section 5.0, below.

#### **4.5.1 Calculating Under and Overspending on Roads and Streets by Texas Cities and Counties**

The FHI of a city/county is a good measure of the constraints imposed on city/county finances by economic, social, and demographic factors. Though a city/county's FHI is not representative of its actual budgetary situation, nevertheless, it indicates the magnitude of the fiscal challenge facing city/county officials. A city/county may rectify budget deficits by raising additional revenue, through more taxation, or by making cuts in the quality of services it provides to its citizens. However, a city/county's inherent RRC and SEN imposes limits on any such actions. (Ladd and Yinger, 1989, pp. 103-104)

Theoretically speaking, a city/county with a negative FHI would need a boost in RRC, through external sources, to be able to provide services of the quality that the average city/county could provide out of its own broad-based revenue sources. On the other hand, a city/county with a positive FHI could provide services of the quality of the average city/county and still have RRC available for either better services or lower taxes. (Ladd and Yinter, 1989, pp. 106)

Based on the above mentioned facts, we decided to utilize FHI in estimating the revenue shortfalls or surpluses city/county governments would face in maintaining their local roads and streets in acceptable condition. The basic assumption was that a city/county with a FHI equal to zero (or very close to it), in normal circumstances would spend the optimal amount of money, from its own sources, towards construction and maintenance, to keep its local roads and streets in acceptable condition.

The information we used in calculating these estimates included FHI for each city/county, actual city/county expenditure on local roads/streets, and number of vehicle registrations in the city/county. All this data was obtained for each city/county for the years 1972, 1982, and 1992. For 1995 and 2000 we used straight line projections of the data from the earlier years. Thus, we arrived at estimates of shortfalls or excesses in road and street expenditure for 1972, 1982, and 1992, for most of the cities/counties in our sample. We have also projected the expected shortfall/excess of funds cities/counties will face in 1995 and 2000 in attempting to keep their roads and streets in acceptable conditions.

A city/county facing a shortfall of funds would need to seek non-local revenue so that it may spend the required amount of money to keep its roads and streets in an *acceptable* condition. Without non-local revenue the city/county would end up underspending on its road/streets, which would result in poorer quality of roadways in that city/county.

**Acceptable Condition** 'Acceptable condition' implies roads and streets of a quality equivalent to that of the roads and streets in the average city/county (City/county whose FHI is close to or equal to zero *and* whose roads/streets are in a satisfactory state with respect to pavement condition and in meeting local traffic needs).

### *Identifying the 'Ideal' City/County*

For a given year, we grouped all the cities/counties along with their actual expenditure on roads and streets, vehicle registrations, and FHI. A city/county's actual expenditure on roads and streets was the sum of the amount it spent on construction activities (Right-of-Way, Engineering, and Construction) and on maintenance of the existing roadways under its jurisdiction.

The vehicle registrations for a city/county were obtained from county vehicle registration data. The number of vehicles registered in the city was approximated as being equal to the ratio of city population to county population multiplied by county vehicle registrations.

Before we carried out the analysis, we converted all the actual city/county expenditure figures from nominal dollars to 1982 dollars. This was done by dividing all the nominal expenditure dollar amounts by that year's GNP deflator. The GNP deflators used were indexed to a 1982 base. This allowed us to analyze any changes from year to year in *real*, as opposed to nominal, terms.

The first step was to identify the city/county whose FHI was closest to zero. Then, we examined such a city/county's actual road/street expenditure per vehicle registration. The city/county's actual expenditure per vehicle registration was compared to the average expenditure per vehicle registration by all cities/counties in that year. If the figure was too far off from the average, the city/county was not selected. In that case, the city/county whose FHI was next closest to zero was chosen. This city/county, in turn, was examined in the manner described above to see if its road/street expenditure per vehicle registration was reasonable compared to the average value. These steps were carried out in an iterative fashion till a city/county was found that had a FHI close to zero *and* a road/street expenditure amount, per vehicle registration, which was reasonably close to the average for all the

cities/counties in that year. The city/county chosen through this process was to be the 'Ideal City/County', for that year.

Following the above procedure ensured that the city/county chosen did not have an unusually low or high amount of expenditure. A city/county whose FHI was very close to zero could have spent an unusually high amount per vehicle registration on its roads and streets if, for example, it had a lot of new roads under construction in that year. We did not include such a city/county because construction of a large number of roads is definitely not a normal yearly event for any city/county. Similarly, a city/county whose FHI is very close to zero, which has spent very little on its roads and streets, cannot be included either because such a city/county would obviously possess very new roads, which required little or no maintenance in that year.

The city/county chosen in the manner outlined above, our so-called *Ideal City/County*, would be used as a bench mark for comparing other cities/counties' road/street spending in that particular year. For that year, this city/county is *assumed* to have spent the optimal amount per vehicle registration on its roads and streets to keep them in an *acceptable condition*.

### *Estimation Technique*

Now that we have established what we mean by an *Ideal City/County*, we proceed to calculate how much a city/county underspent or overspent on its roads and streets in its endeavor to maintain them in an acceptable condition. It must be noted that we assume a city/county's objective is to have roads and streets in an acceptable condition (see definition above). Any spending by a city/county, over and above the amount required to keep its roads and streets in an acceptable condition is considered as 'Excess Spending,' i.e., the city has overspent. Usually, a city/county which has 'overspent' is providing roads and streets of a better quality to its residents than those provided by the *average* city/county.

The first step in estimating how much a city/county has overspent or underspent on its roads and streets is to calculate the actual expenditure per vehicle registration,  $A^*$  by the 'Ideal' city/county:

$$A_t^* = \frac{ActExp_t^*}{VehReg_t^*}$$

where :  $ActExp_t^*$  is the actual expenditure by the 'Ideal' city/county in year t, and  $VehReg_t^*$  represents the number of vehicles registered in the 'Ideal' city/county in year t.

The next step is to determine the actual spending by all other cities/counties, per vehicle registration, in that particular year. This is determined as follows:

$$A_{j,t} = \frac{ActExp_{j,t}}{VehReg_{j,t}}$$

where  $A_{j,t}$  is the actual expenditure by city/county j in year t, and  $VehReg_{j,t}$  is the number of vehicles registered in city/county j in year t. Now that we have computed these items, we are in a position to determine how much city/county j should have spent in year t on its roads and streets to maintain them in acceptable condition. This amount is called the *Required Expenditure* ( $ReqExp_{j,t}$ ):

$$ReqExp_{j,t} = ActExp_{j,t} \times \frac{A_t^*}{A_{j,t}}$$

To obtain the amount a city/county underspent or overspent on its roads and streets in its endeavor to maintain them in an acceptable condition, we simply subtract city/county j's

required expenditure in year t from its actual expenditure in year t. If this amount, represented by  $Amount_{j,t}$ , is negative, the city/county has underspent, while if it is positive, the city/county has 'overspent.' This is determined as follows:

$$Amount_{j,t} = ActExp_{j,t} - ReqExp_{j,t}$$

where  $Amount_{j,t}$  is the amount city/county j overspent/underspent in year t. If a city/county has underspent, then, that city/county probably was short of revenues necessary to keep its roads/streets in an acceptable condition. Such a city/county would need additional revenue, possibly from non-local sources, to maintain its roads/streets in an acceptable condition.

Tables D-1 through D-20, in Appendix D, show how much the various cities and counties in Texas are estimated to have overspent/underspent on their local roads and streets. The estimates are for the years 1972, 1982, 1992, 1995, and 2000. All the estimates are expressed in 1982 dollars because all of our analyses have been indexed to 1982. The estimates for 1995 and 2000 are based on projections of actual expenditure, FHI, and vehicle registrations from earlier years. Each of these tables has one city/county in **bold** format. This city/county was the *Ideal City/County* for that year. This particular city/county is used as the benchmark for comparison of road/street expenditure by other cities/counties in that year. Note that for the Ideal City/County, the amount overspent/underspent always equals zero.

#### **4.5.2 Summary: Estimates of Non-Local Revenue Required to Maintain Local Streets and Roads in Acceptable Condition - MSA Cities/Counties and Non-Metro Cities/Counties**

Tables 4-3 through 4-12 present the estimated shortfalls or excesses in city/county road and street expenditure. These numbers were determined using the method outlined in Section 4.5.1. These tables summarize Tables D1-D20 in Appendix D. Unlike Tables D1-

D20, the amounts represented in Tables 4-3 through 4-12 are in 1992 Dollars.

*Estimates for 1972, 1982, and 1992 (Tables 4-3 to 4-7)*

Table 4-3 presents the estimates of shortfalls or excesses in road and street expenditures for the metro-area cities (MSA cities) in our group. We see that the percent of cities that underspent was 51% in 1972, 73% in 1982, and 66% in 1992. It can be seen that the proportion of cities which could not adequately fund their road and street expenditure needs grew between 1972-1992, with a sharp increase in 1982. It should be noted that for

**TABLE 4-3: ESTIMATES OF SHORTFALLS OR EXCESSES IN ROAD AND STREET EXPENDITURES, MSA CITIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

CITY	1972 OVER/ (UNDER) SPENT	CITY	1982 OVER/ (UNDER) SPENT	CITY	1992 OVER/ (UNDER) SPENT
Dallas	\$24,256,636	Beaumont	\$4,687,587	Houston	\$13,736,320
Fort Worth	\$14,212,378	Plano	\$4,477,307	Dallas	\$11,741,248
Arlington	\$7,521,736	Arlington	\$4,272,401	Carrollton	\$9,181,119
Austin	\$3,990,329	Victoria	\$4,154,259	Laredo	\$7,136,440
Laredo	\$3,892,000	Fort Worth	\$3,733,572	Plano	\$5,793,749
Richardson	\$3,043,268	North Richland Hills	\$2,886,899	Longview	\$3,104,494
Texas City	\$2,721,833	Carrollton	\$2,588,222	Texarkana	\$2,679,046
Beaumont	\$2,481,451	Temple	\$1,974,493	Victoria	\$2,594,706
Grand Prairie	\$1,952,458	Bryan	\$663,676	Duncanville	\$1,945,625
North Richland Hills	\$1,408,887	College Station	\$397,917	Waco	\$1,657,052
Texarkana	\$1,185,080	Baytown	\$113,894	Richardson	\$1,283,181
Brownsville	\$1,071,185	Amarillo	\$0	Harlingen	\$797,752
McAllen	\$1,062,847	Port Arthur	(\$153,988)	Texas City	\$739,022



CITY	1972 OVER/ (UNDER) SPENT	CITY	1982 OVER/ (UNDER) SPENT	CITY	1992 OVER/ (UNDER) SPENT
Mesquite	\$985,008	Harlingen	(\$198,366)	McAllen	\$322,438
Bryan	\$689,650	McAllen	(\$438,523)	Mesquite	\$198,306
Baytown	\$618,703	Lubbock	(\$793,794)	Del Rio	\$158,285
Waco	\$601,182	Texas City	(\$993,572)	Fort Worth	\$0
Lufkin	\$431,971	Duncanville	(\$1,631,688)	Grand Prairie	(\$67,717)
Pasadena	\$295,325	Mesquite	(\$1,650,126)	Paris	(\$88,637)
Carrollton	\$213,888	Galveston	(\$1,767,879)	Lufkin	(\$159,672)
College Station	\$113,678	Hurst	(\$1,857,068)	Arlington	(\$184,073)
Duncanville	\$93,354	Denton	(\$1,865,548)	Nacogdoches	(\$286,445)
Harlingen	\$27,339	Haltom City	(\$1,893,162)	Brownsville	(\$527,344)
Denton	\$26,950	Killeen	(\$2,190,700)	North Richland Hills	(\$583,087)
Port Arthur	\$0	Wichita Falls	(\$3,121,589)	Temple	(\$703,177)
Garland	(\$59,667)	Brownsville	(\$3,148,505)	Hurst	(\$865,807)
Plano	(\$122,386)	Abilene	(\$3,345,895)	Killeen	(\$889,093)
Hurst	(\$159,460)	San Angelo	(\$3,395,209)	Sherman	(\$1,040,418)
Temple	(\$162,660)	Austin	(\$3,551,986)	Bryan	(\$1,162,649)
Nacogdoches	(\$194,189)	Tyler	(\$3,662,420)	Midland	(\$1,377,687)
Irving	(\$251,168)	Richardson	(\$3,695,564)	Port Arthur	(\$1,412,503)
Del Rio	(\$309,297)	Longview	(\$3,957,498)	College Station	(\$1,649,128)
Paris	(\$340,705)	Grand Prairie	(\$4,054,952)	Haltom City	(\$1,664,771)
Victoria	(\$473,038)	Midland	(\$4,087,872)	Beaumont	(\$1,955,388)
Sherman	(\$576,780)	Irving	(\$4,613,169)	Pasadena	(\$2,222,693)
Killeen	(\$738,004)	Odessa	(\$4,638,173)	Denton	(\$2,394,287)
Haltom City	(\$770,570)	Waco	(\$4,674,071)	Odessa	(\$2,569,112)
Abilene	(\$1,293,172)	Pasadena	(\$4,676,368)	Galveston	(\$3,017,458)
Tyler	(\$1,302,111)	Garland	(\$5,328,235)	San Angelo	(\$3,088,392)
Longview	(\$1,374,911)	Corpus Christi	(\$7,956,233)	Tyler	(\$3,297,000)
Galveston	(\$1,409,092)	El Paso	(\$18,428,203)	Wichita Falls	(\$3,436,169)
San Angelo	(\$1,466,028)	Dallas	(\$25,180,361)	Abilene	(\$3,468,822)
Wichita Falls	(\$1,622,153)	Houston	(\$35,200,580)	Irving	(\$3,887,411)
Odessa	(\$1,755,343)	San Antonio	(\$35,375,588)	Garland	(\$4,107,700)

CITY	1972 OVER/ (UNDER) SPENT	CITY	1982 OVER/ (UNDER) SPENT	CITY	1992 OVER/ (UNDER) SPENT
Midland	(\$2,005,138)	Del Rio	NA	Lubbock	(\$4,562,093)
El Paso	(\$3,130,632)	Edinburg	NA	Amarillo	(\$4,691,405)
Corpus Christi	(\$3,245,785)	Laredo	NA	Corpus Christi	(\$6,833,678)
Lubbock	(\$3,361,302)	Lufkin	NA	Austin	(\$7,304,968)
Amarillo	(\$3,412,694)	Mission	NA	San Antonio	(\$13,234,407)
Houston	(\$9,693,134)	Nacogdoches	NA	El Paso	(\$18,505,443)
San Antonio	(\$10,753,437)	Paris	NA	Baytown	NA
Edinburg	NA	Sherman	NA	Edinburg	NA
Mission	NA	Texarkana	NA	Mission	NA

**NOTE: [All Dollar amounts are expressed in 1992 Dollars]**

Tables 4-3 to 4-6, it is not as important to look at individual cities'/counties' shortfalls or excesses in a given year, as it is to see the *total percentage* of cities/counties which fell short of meeting their road and street expenditure needs. A particular city/county, in a given year, may have *significantly overspent* due to heavy construction activity on its roads and streets in that year. Conversely, a particular city/county, in a given year, may have *significantly underspent* because it may have roads and streets in very good condition (may be newly constructed in recent years).

Table 4-4 looks at the metro-area counties (MSA counties). The percentage of MSA counties which were unable to meet their road and street-related expenditure requirements showed an increase from 58% in 1972, 68% in 1982, to 72% in 1992. This trend mirrors what was observed in the case of the MSA cities.

**TABLE 4-4: ESTIMATES OF SHORTFALLS OR EXCESSES IN ROAD AND STREET EXPENDITURES, MSA COUNTIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

COUNTY	1972 OVER/ (UNDER) SPENT	COUNTY	1982 OVER/ (UNDER) SPENT	COUNTY	1992 OVER/ (UNDER) SPENT
Gregg	\$2,498,192	Harris	\$55,115,213	Harris	\$25,817,294
Grayson	\$432,550	Gregg	\$2,290,620	Travis	\$16,396,471
Collin	\$365,281	Webb	\$1,290,757	Galveston	\$5,662,022
Smith	\$331,327	Collin	\$1,014,390	Ector	\$1,756,073
Lamar	\$247,250	Travis	\$502,490	Collin	\$962,021
Val Verde	\$232,166	Ector	\$486,850	Grayson	\$740,719
Angelina	\$153,725	Nueces	\$477,705	Brazos	\$466,702
Nacogdoches	\$137,695	Galveston	\$441,850	Gregg	\$32,610
Nueces	\$130,729	Smith	\$0	Victoria	\$0
McLennan	\$94,301	Victoria	(\$1,905)	Val Verde	(\$31,529)
Victoria	\$64,824	Brazos	(\$52,053)	Smith	(\$241,491)
Coryell	\$18,391	Bell	(\$403,657)	Coryell	(\$284,132)
Cameron	\$16,987	McLennan	(\$681,420)	Bowie	(\$355,422)
Bell	\$0	Randall	(\$1,001,602)	Midland	(\$623,502)
Webb	(\$181,601)	Tom Green	(\$1,003,101)	McLennan	(\$679,068)
Brazos	(\$277,817)	Jefferson	(\$1,038,764)	Webb	(\$815,054)
Denton	(\$330,597)	Midland	(\$1,224,730)	Taylor	(\$864,755)
Galveston	(\$362,872)	Hidalgo	(\$1,340,842)	Randall	(\$933,362)
Tom Green	(\$431,194)	Denton	(\$1,413,056)	Tom Green	(\$1,082,748)
Jefferson	(\$542,300)	Wichita	(\$1,794,221)	Bell	(\$1,222,204)
Randall	(\$592,023)	Potter	(\$1,905,185)	Nueces	(\$1,399,788)
Ector	(\$710,024)	Taylor	(\$1,940,642)	Wichita	(\$1,485,672)
Midland	(\$822,579)	Cameron	(\$2,350,931)	Cameron	(\$1,532,563)
Taylor	(\$953,577)	Lubbock	(\$3,147,501)	Jefferson	(\$1,897,972)
Wichita	(\$967,374)	El Paso	(\$7,454,430)	Potter	(\$1,953,637)
Potter	(\$1,401,884)	Dallas	(\$14,244,929)	Hidalgo	(\$2,022,473)
Lubbock	(\$2,014,983)	Bexar	(\$18,063,032)	Denton	(\$3,434,167)
Travis	(\$2,521,843)	Tarrant	(\$18,929,174)	Lubbock	(\$4,081,112)
El Paso	(\$4,427,728)	Lamar	NA	El Paso	(\$9,025,889)
Tarrant	(\$8,673,345)	Coryell	NA	Bexar	(\$12,182,634)

COUNTY	1972 OVER/ (UNDER) SPENT	COUNTY	1982 OVER/ (UNDER) SPENT	COUNTY	1992 OVER/ (UNDER) SPENT
Harris	(\$10,192,735)	Grayson	NA	Tarrant	(\$12,300,924)
Bexar	(\$10,946,768)	Val Verde	NA	Dallas	(\$22,750,946)
Dallas	(\$16,497,508)	Bowie	NA	Lamar	NA
Hidalgo	NA	Nacogdoches	NA	Nacogdoches	NA
Bowie	NA	Angelina	NA	Angelina	NA

NOTE: [All Dollar amounts are expressed in 1992 Dollars]

Table 4-5 shows the estimates for non-metro cities. Among the non-metro cities, the percent which were estimated to have underspent on their roads and streets was 60% in 1972 and 61% in 1992. We do not have sufficient information to make a conclusion for 1982.

**TABLE 4-5: ESTIMATES OF SHORTFALLS OR EXCESSES IN ROAD AND STREET EXPENDITURES, NON-METRO CITIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

CITY	1972 OVER/ (UNDER) SPENT	CITY	1982 OVER/ (UNDER) SPENT	CITY	1992 OVER/ (UNDER) SPENT
Palestine	\$928,043	Greenville	\$1,590,521	Huntsville	\$805,689
Greenville	\$505,347	Freeport	\$1,439,320	Denison	\$289,760
Kingsville	\$499,161	Huntsville	\$599,908	Beeville	\$193,257
Freeport	\$383,062	Alice	\$0	Bay City	\$180,597
Huntsville	\$318,639	Kingsville	(\$26,717)	Palestine	\$163,619
Beeville	\$206,446	Big Spring	(\$192,473)	Mineral Wells	\$114,064
Bay City	\$205,331	New Braunfels	(\$269,604)	Big Spring	\$70,806
Denison	\$201,577	Brownfield	(\$340,563)	Uvalde	\$62,656
Cleburne	\$130,493	Seguin	(\$374,239)	New Braunfels	\$46,125
Sweetwater	\$0	Groves	(\$395,518)	Kingsville	\$19,297
Mineral Wells	(\$57,064)	Pampa	(\$981,411)	Gainesville	\$0
Uvalde	(\$59,857)	Palestine	NA	Eagle Pass	(\$30,816)
Seguin	(\$67,141)	Plainview	NA	Sweetwater	(\$38,732)

CITY	1972 OVER/ (UNDER) SPENT	CITY	1982 OVER/ (UNDER) SPENT	CITY	1992 OVER/ (UNDER) SPENT
Gainesville	(\$92,002)	Snyder	NA	Snyder	(\$59,712)
Groves	(\$94,393)	Sweetwater	NA	Lamesa	(\$111,769)
Vernon	(\$132,295)	Uvalde	NA	Groves	(\$148,583)
Borger	(\$134,949)	Borger	NA	Freeport	(\$168,799)
Alice	(\$172,427)	Beeville	NA	Cleburne	(\$217,296)
Lamesa	(\$191,205)	Mineral Wells	NA	Pampa	(\$221,118)
Brownwood	(\$201,442)	Lamesa	NA	Brownfield	(\$237,863)
Snyder	(\$221,445)	Bay City	NA	Greenville	(\$283,527)
Corsicana	(\$230,128)	Gainesville	NA	Corsicana	(\$292,503)
Pampa	(\$266,840)	Eagle Pass	NA	Vernon	(\$312,074)
Plainview	(\$310,613)	Denison	NA	Borger	(\$316,107)
Big Spring	(\$475,184)	Corsicana	NA	Alice	(\$318,030)
Brownfield	NA	Cleburne	NA	Seguin	(\$339,974)
New Braunfels	NA	Brownwood	NA	Plainview	(\$503,520)
Eagle Pass	NA	Vernon	NA	Brownwood	(\$524,168)

NOTE: [All Dollar amounts are expressed in 1992 Dollars]

Table 4-6 displays the level of under/overspending by the non-metro counties in our group. The percent of counties who experienced a shortfall in meeting their road and street expenditure needs was 65% in 1972. We did not have sufficient information to draw an inference for 1982 or 1992.

**TABLE 4-6: ESTIMATES OF SHORTFALLS OR EXCESSES IN ROAD AND STREET EXPENDITURES, NON-METRO COUNTIES, RANKED IN DESCENDING ORDER, 1972, 1982, AND 1992**

COUNTY	1972 OVER/ (UNDER) SPENT	COUNTY	1982 OVER/ (UNDER) SPENT	COUNTY	1992 OVER/ (UNDER) SPENT
Brazoria	\$4,690,192	Brazoria	\$4,737,926	Brazoria	\$926,505
Matagorda	\$943,631	Dawson	\$435,366	Dawson	\$379,642

COUNTY	1972 OVER/ (UNDER) SPENT	COUNTY	1982 OVER/ (UNDER) SPENT	COUNTY	1992 OVER/ (UNDER) SPENT
Scurry	\$512,496	Walker	\$390,606	Wilbarger	\$365,298
Wilbarger	\$211,018	Nolan	\$251,472	Nolan	\$278,485
Anderson	\$111,461	Kleburg	\$85,598	Anderson	\$56,716
Terry	\$106,321	Wilbarger	\$0	Walker	\$0
Bee	\$47,751	Hunt	(\$372,310)	Kleburg	(\$225,653)
Jim Wells	\$41,886	Comal	(\$696,800)	Gray	(\$245,904)
Nolan	\$0	Brown	(\$804,422)	Uvalde	(\$385,306)
Maverick	(\$60,730)	Navarro	NA	Maverick	(\$429,507)
Uvalde	(\$135,546)	Uvalde	NA	Hunt	(\$468,274)
Cooke	(\$194,351)	Palo Pinto	NA	Brown	(\$504,932)
Navarro	(\$211,672)	Scurry	NA	Comal	(\$823,513)
Walker	(\$218,668)	Terry	NA	Johnson	(\$1,157,993)
Dawson	(\$271,730)	Maverick	NA	Scurry	NA
Guadalupe	(\$280,171)	Hutchinson	NA	Palo Pinto	NA
Kleburg	(\$322,130)	Matagorda	NA	Terry	NA
Brown	(\$331,712)	Johnson	NA	Cooke	NA
Gray	(\$342,307)	Jim Wells	NA	Navarro	NA
Howard	(\$345,724)	Bee	NA	Matagorda	NA
Hutchinson	(\$393,661)	Howard	NA	Jim Wells	NA
Comal	(\$398,659)	Hale	NA	Bee	NA
Hale	(\$450,211)	Guadalupe	NA	Howard	NA
Palo Pinto	(\$453,300)	Gray	NA	Hale	NA
Hunt	(\$479,734)	Cooke	NA	Guadalupe	NA
Johnson	(\$612,252)	Anderson	NA	Hutchinson	NA

NOTE: [All Dollar amounts are expressed in 1992 Dollars]

Table 4-7 summarizes the total over and underspending by all the cities and counties in our study group. Please note that the total amount in the bottom row is the sum of the over/underspending by the cities and counties in the years 1972, 1982, and 1992. It is NOT the total underspending by cities and counties in our group over the last 2 decades (1972-1992). We can see that in 1992 three of the four categories in our study group - MSA cities,

**TABLE 4-7: TOTAL OVER- AND UNDERSPENDING ON ROADS AND STREETS IN TEXAS CITIES AND COUNTIES, 1972, 1982, AND 1992**

CATEGORY		1972	1982	1992
<b>MSA CITIES</b>	<b>Total</b>	\$18,207,495	(\$167,690,550)	(\$46,568,450)
(N=43)	<b>Mean</b>	\$423,430	(\$3,899,780)	(\$1,082,987)
<b>MSA COUNTIES</b>	<b>Total</b>	(\$59,347,109)	(\$15,030,459)	(\$27,414,296)
(N=27)	<b>Mean</b>	(\$2,198,041)	(\$556,684)	(\$1,015,344)
<b>NON-METRO CITIES</b>	<b>Total</b>	\$671,113	NA	(\$1,956,167)
(N=25)	<b>Mean</b>	\$26,845	NA	(\$78,247)
<b>NON-METRO COUNTIES</b>	<b>Total</b>	\$1,162,198	NA	NA
(N=26)	<b>Mean</b>	\$44,700	NA	NA
<b>TOTAL BY YEAR</b>		<b>(\$39,306,303)</b>	<b>(\$182,721,009)</b>	<b>(\$75,938,913)</b>
<b>TOTAL 1972, 1982, 1992</b>			<b>(\$297,966,225)</b>	

NOTE: [All Dollar amounts are expressed in 1992 Dollars]

MSA counties, and non-metro cities - had underspent, i.e., these groups of cities and counties, as a whole, were unable to meet the expenses required to keep their road and streets in adequate conditions. We also saw from Table 4-3 to 4-6 an increase in the percentage of cities/counties which underspent on their roads and streets from 1972-1992.

Overall, for 1972, 1982, and 1992, the cities and counties in our group are estimated to have underspent to the tune of \$298 million (1992 Dollars). We expect the total amount underspent in the period 1972-1992 to be far higher in comparison to the above mentioned figure, which represents only the underspending for the three years 1972, 1982, and 1992. Please note that we do not have sufficient information for non-metro counties in neither 1982 nor 1992 and, as a result, we are not in a position to determine whether the non-metro counties followed the same general trend as the other 3 categories in our study.

*Forecasts for 1995 and 2000 (Tables 4-8 to 4-12)*

Tables 4-8 through 4-11 provide *forecasts* for 1995 and 2000, of shortfalls or excesses in road and street expenditures by the cities and counties in our group. Note that all the

amounts are in 1992 Dollars.

Table 4-8 presents the forecasts for the MSA cities. The percentage of cities expected to underspend on their roads and streets is 69% in 1995 and 67% in 2000, which represents an increase of over the 66% in 1992.

**TABLE 4-8: FORECASTS OF SHORTFALLS OR EXCESSES IN ROAD AND STREET EXPENDITURES, MSA CITIES, RANKED IN DESCENDING ORDER, 1995 AND 2000**

CITY	1995 OVER/ (UNDER) SPENT	CITY	2000 OVER/ (UNDER) SPENT
Houston	\$16,105,955	Houston	\$31,493,530
Plano	\$10,960,676	Plano	\$13,477,426
Carrollton	\$9,465,519	Carrollton	\$11,856,526
Austin	\$4,496,573	Austin	\$6,561,526
Arlington	\$3,760,974	Arlington	\$4,491,704
Victoria	\$3,449,186	Victoria	\$4,323,208
Laredo	\$2,893,213	Laredo	\$3,277,309
Richardson	\$1,348,716	San Antonio	\$2,166,604
Duncanville	\$1,280,292	Duncanville	\$1,852,846
Texarkana	\$1,244,622	Longview	\$1,793,623
Temple	\$1,032,490	Richardson	\$1,610,429
Longview	\$649,455	Texarkana	\$1,608,394
Mesquite	\$191,704	Temple	\$1,242,077
Harlingen	\$143,242	Mesquite	\$728,427
Paris	\$41,577	Harlingen	\$365,364
<b>Fort Worth</b>	<b>\$0</b>	Paris	\$278,634
Grand Prairie	(\$445,687)	<b>Fort Worth</b>	<b>\$0</b>
Del Rio	(\$505,379)	Grand Prairie	(\$101,066)
Port Arthur	(\$557,817)	Del Rio	(\$360,836)
North Richland Hills	(\$582,904)	Port Arthur	(\$425,385)
Bryan	(\$708,700)	Waco	(\$619,716)
McAllen	(\$806,633)	McAllen	(\$927,135)



CITY	1995 OVER/ (UNDER) SPENT	CITY	2000 OVER/ (UNDER) SPENT
Texas City	(\$848,800)	Nacogdoches	(\$939,337)
Beaumont	(\$889,129)	Bryan	(\$941,449)
Lufkin	(\$933,705)	Lufkin	(\$988,447)
Waco	(\$945,213)	North Richland Hills	(\$1,057,653)
Nacogdoches	(\$974,933)	Sherman	(\$1,077,294)
College Station	(\$1,032,820)	Killeen	(\$1,117,397)
Sherman	(\$1,144,486)	Midland	(\$1,238,491)
Killeen	(\$1,326,698)	Texas City	(\$1,246,629)
Brownsville	(\$1,356,360)	College Station	(\$1,258,739)
Hurst	(\$1,383,516)	Brownsville	(\$1,383,637)
Midland	(\$1,630,186)	Hurst	(\$1,414,084)
Haltom City	(\$1,953,080)	Beaumont	(\$1,653,500)
Irving	(\$2,147,415)	Irving	(\$1,731,788)
Galveston	(\$2,345,783)	Haltom City	(\$2,024,924)
Baytown	(\$2,429,361)	Galveston	(\$2,327,270)
Denton	(\$2,720,999)	Odessa	(\$2,530,272)
Pasadena	(\$2,739,984)	Amarillo	(\$2,761,856)
Odessa	(\$2,813,331)	Pasadena	(\$2,827,138)
Amarillo	(\$3,050,419)	Baytown	(\$2,917,954)
Wichita Falls	(\$3,084,340)	Wichita Falls	(\$2,931,134)
Tyler	(\$3,390,504)	Denton	(\$3,032,537)
San Angelo	(\$3,930,487)	Tyler	(\$3,858,930)
Garland	(\$4,089,539)	Lubbock	(\$4,028,801)
Abilene	(\$4,206,045)	San Angelo	(\$4,063,717)
San Antonio	(\$4,259,952)	Abilene	(\$4,234,373)
Lubbock	(\$4,457,555)	Garland	(\$4,276,957)
Corpus Christi	(\$6,304,632)	Corpus Christi	(\$5,893,367)
Dallas	(\$10,290,433)	Dallas	(\$9,407,680)
El Paso	(\$21,418,078)	El Paso	(\$23,745,598)
Edinburg	NA	Edinburg	NA
Mission	NA	Mission	NA

NOTE: [All Dollar amounts are expressed in 1992 Dollars]

Table 4-9 contains the forecasts of shortfalls or excesses in road and street spending for the metro-area counties. The percentage of counties expected to fall short of meeting their road and street expenditure requirements is 72% in 1995 and 75% in 2000, which represents an increase over the 72% which fell short in 1992.

**TABLE 4-9: FORECASTS OF SHORTFALLS OR EXCESSES IN ROAD AND STREET EXPENDITURES, MSA COUNTIES, RANKED IN DESCENDING ORDER, 1995 AND 2000**

COUNTY	1995 OVER/ (UNDER) SPENT	COUNTY	2000 OVER/ (UNDER) SPENT
Harris	\$70,342,584	Harris	\$79,350,945
Travis	\$24,558,410	Travis	\$30,565,101
Galveston	\$9,610,128	Galveston	\$11,667,690
Collin	\$3,642,137	Collin	\$4,051,555
Ector	\$2,070,272	Ector	\$2,577,415
Grayson	\$944,387	Grayson	\$1,006,097
Brazos	\$706,111	Brazos	\$851,122
Victoria	\$51,937	Bowie	\$0
Bowie	\$0	Victoria	(\$36,653)
Val Verde	(\$28,204)	Val Verde	(\$119,175)
Coryell	(\$161,807)	Coryell	(\$235,321)
McLennan	(\$175,350)	McLennan	(\$457,343)
Smith	(\$231,859)	Webb	(\$612,354)
Webb	(\$342,261)	Midland	(\$642,526)
Gregg	(\$356,038)	Smith	(\$707,288)
Midland	(\$572,968)	Gregg	(\$998,727)
Bell	(\$807,418)	Randall	(\$1,062,228)
Randall	(\$902,107)	Bell	(\$1,162,318)
Tom Green	(\$1,096,012)	Taylor	(\$1,208,649)
Taylor	(\$1,127,223)	Tom Green	(\$1,336,210)
Wichita	(\$1,409,282)	Wichita	(\$1,581,882)
Cameron	(\$1,433,203)	Cameron	(\$1,896,749)
Nueces	(\$1,479,642)	Potter	(\$2,114,936)
Hidalgo	(\$1,720,345)	Nueces	(\$2,291,624)

COUNTY	1995 OVER/ (UNDER) SPENT	COUNTY	2000 OVER/ (UNDER) SPENT
Potter	(\$1,922,950)	Hidalgo	(\$2,436,474)
Jefferson	(\$2,056,904)	Jefferson	(\$2,702,149)
Denton	(\$3,176,284)	Denton	(\$4,095,956)
Lubbock	(\$4,061,580)	Lubbock	(\$4,695,382)
El Paso	(\$8,969,883)	El Paso	(\$10,372,011)
Bexar	(\$11,139,536)	Bexar	(\$12,304,290)
Tarrant	(\$15,630,308)	Tarrant	(\$17,752,781)
Dallas	(\$22,478,384)	Dallas	(\$25,574,300)
Nacogdoches	NA	Nacogdoches	NA
Lamar	NA	Lamar	NA
Angelina	NA	Angelina	NA

NOTE: [All Dollar amounts are expressed in 1992 Dollars]

Table 4-10 contains the forecasts of shortfalls or excesses in road and street spending for the non-metro cities. The percentage of cities expected to fall short of meeting their road and street expenditure requirements is 46% in 1995 and 50% in 2000, which represents a decrease over the 61% which fell short in 1992.

**TABLE 4-10: FORECASTS OF SHORTFALLS OR EXCESSES IN ROAD AND STREET EXPENDITURES, NON-METRO CITIES, RANKED IN DESCENDING ORDER, 1995 AND 2000**

CITY	1995 OVER/ (UNDER) SPENT	CITY	2000 OVER/ (UNDER) SPENT
Denison	\$2,243,168	Denison	\$2,528,783
Huntsville	\$1,121,919	Huntsville	\$1,212,192
Big Spring	\$452,248	Big Spring	\$603,817
Freeport	\$424,074	Freeport	\$298,950
Greenville	\$260,172	Lamesa	\$249,326
Cleburne	\$229,645	Alice	\$169,368

CITY	1995 OVER/ (UNDER) SPENT	CITY	2000 OVER/ (UNDER) SPENT
Alice	\$174,680	Mineral Wells	\$162,234
Lamesa	\$174,559	Cleburne	\$160,983
Beeville	\$165,680	Beeville	\$139,296
Mineral Wells	\$148,832	Bay City	\$63,571
Bay City	\$119,381	Uvalde	\$52,185
Uvalde	\$41,874	Greenville	\$12,060
Kingsville	\$14,587	Gainesville	\$0
Gainesville	\$0	Snyder	(\$46,743)
Sweetwater	(\$47,998)	Sweetwater	(\$67,213)
Snyder	(\$72,364)	Groves	(\$115,733)
Groves	(\$91,990)	Pampa	(\$127,671)
Pampa	(\$125,296)	Kingsville	(\$137,243)
Palestine	(\$184,075)	Brownfield	(\$232,630)
Seguin	(\$193,300)	Seguin	(\$282,963)
Brownfield	(\$199,917)	Corsicana	(\$386,887)
Corsicana	(\$326,342)	Vernon	(\$410,420)
Vernon	(\$346,146)	Palestine	(\$435,578)
Borger	(\$361,584)	Borger	(\$438,876)
Brownwood	(\$393,618)	Brownwood	(\$465,421)
Plainview	(\$515,946)	Plainview	(\$570,909)
New Braunfels	NA	Eagle Pass	NA
Eagle Pass	NA	New Braunfels	NA

NOTE: [All Dollar amounts are expressed in 1992 Dollars]

Table 4-11 contains the forecasts of shortfalls or excesses in road and street spending for the non-metro counties. The percentage of counties expected to fall short of meeting their road and street expenditure requirements is not available due to lack of sufficient information.

**TABLE 4-11: FORECASTS OF SHORTFALLS OR EXCESSES IN ROAD AND STREET EXPENDITURES, NON-METRO COUNTIES, RANKED IN DESCENDING ORDER, 1995 AND 2000**

COUNTY	1995 OVER/ (UNDER) SPENT	COUNTY	2000 OVER/ (UNDER) SPENT
Brazoria	\$2,671,216	Brazoria	\$1,967,280
Dawson	\$546,277	Dawson	\$701,847
Wilbarger	\$395,943	Wilbarger	\$449,874
Nolan	\$293,519	Nolan	\$350,672
Anderson	\$31,557	Walker	\$0
Walker	\$0	Anderson	(\$2,572)
Comal	(\$102,325)	Comal	(\$65,983)
Kleburg	(\$225,471)	Kleburg	(\$235,618)
Gray	(\$267,169)	Gray	(\$248,026)
Uvalde	(\$555,094)	Brown	(\$600,359)
Brown	(\$561,789)	Uvalde	(\$641,074)
Maverick	(\$582,257)	Maverick	(\$701,461)
Hunt	(\$952,790)	Hunt	(\$1,085,065)
Johnson	(\$1,240,955)	Johnson	(\$1,453,045)
Scurry	NA	Terry	NA
Palo Pinto	NA	Scurry	NA
Terry	NA	Palo Pinto	NA
Cooke	NA	Cooke	NA
Navarro	NA	Navarro	NA
Matagorda	NA	Matagorda	NA
Jim Wells	NA	Jim Wells	NA
Bee	NA	Bee	NA
Howard	NA	Howard	NA
Hale	NA	Hale	NA
Guadalupe	NA	Guadalupe	NA
Hutchinson	NA	Hutchinson	NA

NOTE: [All Dollar amounts are expressed in 1992 Dollars]

Table 4-12 summarizes the total *expected* over and underspending by all the cities and counties in our study in 1995 and 2000. Please note that the total amount in the bottom row represents the sum of the expected over/underspending by our select cities and counties in the years 1995 and 2000. It is NOT the total overspending expected for the period 1995-2000.

MSA cities are expected to *underspend* both in 1995 and 2000 to the tune of \$67 million (1992 Dollars). However, MSA counties and non-metro cities are expected to *overspend* on their roads and streets in 1995 and 2000. Overall, for 1995 and 2000, the cities and counties in our group are expected to *overspend* approximately \$12 million (1992 Dollars). This is largely attributable to possible construction and expansion activities to be undertaken outside the metro-area cities, i.e., in the MSA counties and the non-metro cities and counties.

**TABLE 4-12: TOTAL FORECASTED OVER AND UNDERSPENDING ON ROADS AND STREETS IN TEXAS CITIES AND COUNTIES, 1995 AND 2000**

CATEGORY		1995	2000
MSA CITIES	Total	(\$44,640,707)	(\$12,217,466)
(N=51)	Mean	(\$875,308)	(\$239,558)
MSA COUNTIES	Total	\$30,646,416	\$33,672,599
(N=32)	Mean	\$957,701	\$1,052,269
NON-METRO CITIES	Total	\$2,712,240	\$1,934,479
(N=26)	Mean	\$104,317	\$74,403
NON-METRO COUNTIES	Total	NA	NA
(N=14)	Mean	NA	NA
TOTAL BY YEAR		(\$11,282,051)	\$23,389,612
TOTAL 1995 AND 2000			\$12,107,561

NOTE: [All Dollar amounts are expressed in 1992 Dollars]



## 5.0 POLICY RECOMMENDATIONS

The findings reported in the previous sections suggest that Texas cities and counties as a whole have spent far less money over the last two decades than has been required to keep their roads and streets in acceptable conditions. At least some of this underspending has been the result of structural constraints on cities/counties' RRC and increasing costs for city/county services, resulting in poor fiscal health. Given that our fiscal health index accounts for only about 15% of the variation in city/county street and road expenditures, however, there appears to be substantial latitude for policy intervention at the state and local level to improve local streets and roads. We should emphasize that perhaps the most effective policy actions can be made at the local level, particularly in jurisdictions that have growing populations and PCI. In most instances, this combination translates into substantial amounts of unused RRC. Local jurisdictions can either raise taxes or, given the relative affluence of their residents, attempt to successfully persuade voters to pass bond issues dedicated to city/county infrastructure improvements.

In addition, there is room for policy intervention at the state level. TxDOT has had several important programs in place over the last decade that have sought to aid localities with rehabilitation and reconstruction of their streets. The findings brought forth in this study lead naturally to the question of whether these programs have targeted this aid to the cities/counties with the greatest need both in terms of roadway conditions and fiscal health. The findings presented in this study, if used to target aid programs more effectively, may help improve the efficiency of these programs. We first review their current status and then articulate policy recommendations designed to achieve this goal.

### *The Status of TxDOT Aid Programs to City and County Governments*

As of October 1994, TxDOT had programmed \$2.53 billion dollars in five categories of aid to Texas MSA and non-MSA cities and counties designed to assist them in maintaining



and upgrading their bridges and streets:

**4C, STP Metropolitan Mobility/Rehabilitation;**  
**4D, STP Urban Mobility/Rehabilitation;**  
**6B, Bridges Off State Highway System;**  
**17, PASS Metro Match; and**  
**18, (PASS).**

Three of these five either distribute or have distributed funds to metropolitan-area jurisdictions with populations of 200,000 or more. Category **4C**, mandated by law under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), distributes funds from Texas's Surface Transportation Program (STP) to metropolitan planning organizations (MPOs) in metropolitan areas with populations greater than 200,000. Categories **17** and **18** contain the remaining funds from previous state programs (e.g., the Principal Arterials Street System, or PASS program) designed to relieve urban traffic congestion by constructing new arterial streets in cities of 200,000-plus residents. These three programs accounted for about 62%, or \$1.575 billion, of all money for local road and street assistance.

Category **4D**, on the other hand, allocated \$655.3 million in STP funds for cities with populations between 5,000 and 200,000. This represented about 26% of the total. As of October 1994, a TxDOT task force recommended that the qualifying criteria for these monies be changed to allow allocation only to those cities with MPOs, disqualifying almost all of the smaller cities in this population range. (TxDot, 1994) More than likely, most of the non-metro cities in the study group would, therefore, be excluded from category **4D** aid, in addition to their statutory exclusion from category **4C**. Some monies, however, would probably be available to smaller jurisdictions from the \$286 million that is currently allocated through TxDOT highway districts for off-system bridge rehabilitation and/or replacement work.

Categories 4C and 4D, then, are the two largest aid programs and are targeted for cities with populations greater than 200,000 and those with MPOs. These are largely, if not entirely, the same set of cities. The task force further recommended that aid be focused on rehabilitation and reconstruction of existing streets rather than added capacity and that funding be programmed so as to increase local jurisdictions' financial participation. (TxDot, 1994) Finally, the task force recommended that in order to be consistent with the category 4C allocation formula, distribution of 4D funds to MPOs should be based on MSA population. Task force members noted that there were other possible aid allocation schemes, but that there were no reliable city street mileage or traffic counts on which to base estimates of vehicle miles traveled (VMT). (TxDot, 1994)

It is not a revelation that little or no reliable information exists about road conditions and traffic counts at the city and county level in Texas. Tables B-1, B-2 in Appendix B summarize the extent to which cities (metro and non-metro) have installed a Pavement Management System (PMS). Table B-1 looks at the types of PMS MSA cities have in place (we collected this data from interviews and surveys). Twenty-two percent of the cities for which we have information have no PMS of any kind, while 25% had a manual system which prioritized maintenance to be performed. Only 50% either maintained pavement data on a database or had some sort of computerized PMS. Among the non-metro cities for which we collected PMS data (see Table B-2), 50% had no PMS of any type, while 19% merely maintained a maintenance prioritization list. Only 31% kept pavement data on a database or had in place a computerized PMS. One immediate consequence of this absence of data is that TxDOT planners are forced to rely solely on one measure--i.e., population--of local needs for outside transportation funding.<sup>10</sup>

However, (1) the FHI scores themselves, (2) their U-shaped correlation with

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<sup>10</sup>Additionally, the overall generalizability of our effort to link fiscal health directly with street and road conditions has been compromised to some degree by the absence of this data and the necessity to use bridge conditions as a proxy.

population change (and indirectly, with PCI growth), and (3) our FHI score-based calculation of under and overspending on city streets and roads are important sets of information that can be incorporated into the process of allocating TxDOT aid to local jurisdictions.

For example, one rule of thumb that could be fashioned from this new information is that some cities with large populations or large rates of population growth are in good fiscal health, while others are not. Generally, the regional differential is between fast-growing, affluent cities of the DFW area and fast-growing but fiscally poor cities of the Rio Grande Valley and South Texas. If aid allocations are based solely on population (or even population growth), and local financial participation formulae are the same for all cities, the result is that large inequities will bedevil the aid allocation process: large or fast-growing cities with rapidly rising PCIs that can afford to contribute more in local funds for state-aided projects (by raising additional tax revenue or bond monies) will receive aid on the same terms as large or fast-growing cities in poor fiscal health who need outside aid equal to some portion of their RRC to maintain services or local infrastructure at a merely average level.

As might be expected, then, our policy recommendations are concerned with (1) using this information to modify or refine the allocation formulae for state aid to cities and counties, and (2) in the long-run, rectifying the absence of information about local street and traffic conditions which hampers the development of more sophisticated--and fairer--allocation formulae.

Overall recommendation: reform and re-focus TxDOT local aid allocation formulae. This has two components. Recommendations 1 and 2 focus on incorporating fiscal health data and under/overspending estimates into aid allocation formula. Recommendations 3, 4, and 5 focus on generating and maintaining data on local road and street conditions so it can be incorporated into the aid allocation process.

## **5.1 RECOMMENDATION 1: CORRELATE TXDOT AID ALLOCATIONS WITH CITY AND COUNTY FISCAL HEALTH SCORES AND ESTIMATED LEVELS OF UNDER/OVERSPENDING**

Our first recommendation is that TxDOT officials should correlate the standardized fiscal health scores for 1992 and preceding years, and the data on under and overspending, with data on aid allocations by city and county from previous programs such as PASS. This is a simple process, through which a simple question can be answered: among cities of 200,000 residents or more, where did the bulk of the aid go? Clearly, if aid was allocated merely on the basis of population, some cities that received aid were in a position to contribute more locally raised revenue, or to raise more revenue--if that were necessary--without straining their structural base of fiscal resources. It is also entirely possible, given that FHI scores were only weakly correlated with under/overspending, that some cities with good fiscal health were also “underspenders” on roads and streets. If they received state aid for local projects, they were in essence relying on this to fill gaps in spending that they were capable of meeting locally, if they had exerted the political will to do so, i.e., by raising taxes or successfully holding a bond election.

If the data on FHI and under/overspending had been taken into account, then, larger amounts of money might have been available to cities in poorer fiscal health. However, a simple descriptive correlation analysis must be carried out to confirm this. In conducting this analysis, TxDOT officials should at minimum scrutinize carefully those allocations--and by implication, the allocation process itself--that went to cities with high fiscal health scores that underspent on roads and streets. Conversely, how much aid went to cities with low fiscal health scores that underspent on local streets? Our initial guess is that, given the distribution of population and population growth over the last two decades, the majority of spending went to cities in the former category. If so, it signals that the formula of allocating aid based simply on population levels is seriously flawed.

**5.2 RECOMMENDATION 2: IN COOPERATION WITH MPOs, MAINTAIN AND UPDATE THE DATA ON FISCAL HEALTH AND LOCAL UNDER/OVERSPENDING EVERY TWO YEARS**

If state aid allocation formulae are to accurately reflect variations in the ability of MSA cities or counties to participate financially in state aid programs, TxDOT must maintain and update data on fiscal health and under/overspending. Preferably, this would occur every two years. MPOs would bear the responsibility for calculating these scores, and TxDOT would then calculate the under/overspending amounts. Over time, the goal of TxDOT policy would be to move all cities' under/overspending closer to zero. This can occur through aid allocations and local financial participation levels calibrated to fiscal health scores. MPOs would use *Ladd and Yinger's* "standardized" approach that we also employ in this report.

**5.3 RECOMMENDATION 3: REQUIRE ALL JURISDICTIONS THAT RECEIVE TXDOT AID TO INSTALL A STATE-STANDARD PAVEMENT MANAGEMENT SYSTEM (PMS)**

The lack of adequate information about local road, street, and traffic conditions is another impediment to fair and objective allocation of state transportation aid to localities. To rectify this, TxDOT should require that all cities that receive state aid install and maintain a PMS. TxDOT should establish state standards for these systems, and screen and recommend vendors who market interjurisdictionally compatible database management software. MPOs should implement these systems in conjunction with city/county street or transportation departments in their jurisdictions.

**5.4 RECOMMENDATION 4: FOR NON-METRO JURISDICTIONS WITH A POPULATION OF 10,000 OR MORE THAT DO NOT RECEIVE AID, ALLOCATE MONIES FOR PURCHASE AND INSTALLATION OF STATE-STANDARD PMS**

For non-metro cities or MSA cities with populations too small--or no MPO--to qualify for state aid, TxDOT should allocate funds for assisting them with the purchase, installation, and maintenance of a PMS.

**5.5 RECOMMENDATION 5: INSTITUTE DECENNIAL CENSUS OF PAVEMENT CONDITIONS IN METRO AND NON-METRO JURISDICTIONS USING PMS DATA.**

Finally, using data from the PMS installed in MPOs and smaller jurisdictions around the state, TxDOT should schedule and implement a decennial (every five years) census of local street and road conditions. This would also include traffic count data gathered by consultants hired by TxDOT for the MPOs in the process of developing local transportation plans. TxDOT would maintain this information in a publicly accessible data base. It would then be incorporated into the aid allocation process. This would further insure that state transportation money goes where the objective need is greatest, and that those jurisdictions with greater fiscal resources contribute more to state-assisted local projects.



**APPENDIX A:  
TABLES ON  
RESIDENT ECONOMIC HEALTH  
AND  
CITY AND COUNTY ECONOMIC HEALTH**





**TABLE A-1: MSA CITIES, PER CAPITA INCOME AND CHANGES, 1972-1992**

QUINTILE	CITY	1972 PCI	% OF MEDIAN	CITY	1992 PCI	% OF MEDIAN	MOVEMENT (Quintiles)
1	Richardson	\$8,961	143.1%	Plano	\$16,840	176.0%	
	North Richland Hills	\$7,974	127.3%	Richardson	\$16,466	172.1%	
	Dallas	\$7,951	127.0%	Carrollton*	\$14,714	153.8%	1
	Arlington	\$7,854	125.4%	Duncanville*	\$13,166	137.6%	1
	Hurst	\$7,675	122.6%	Hurst	\$12,827	134.1%	
	Midland	\$7,602	121.4%	Irving	\$12,675	132.5%	
	Irving	\$7,533	120.3%	Dallas	\$12,580	131.5%	
	Baytown	\$7,370	117.7%	Arlington	\$12,533	131.0%	
	Plano	\$7,342	117.2%	Midland	\$12,503	130.7%	
	Houston	\$7,275	116.2%	North Richland Hills	\$12,280	128.3%	
2	Pasadena	\$7,125	113.8%	Garland	\$11,620	121.4%	
	Garland	\$7,097	113.3%	Austin	\$11,032	115.3%	
	Fort Worth	\$6,959	111.1%	Houston*	\$11,006	115.0%	-1
	Haltom City	\$6,940	110.8%	Mesquite*	\$10,893	113.8%	1
	Carrollton	\$6,933	110.7%	Grand Prairie	\$10,613	110.9%	
	Grand Prairie	\$6,895	110.1%	Tyler	\$10,342	108.1%	
	Duncanville	\$6,888	110.0%	Fort Worth	\$10,158	106.2%	
	Tyler	\$6,742	107.7%	Baytown*	\$10,004	104.5%	-1
	Amarillo	\$6,471	103.3%	Sherman*	\$9,978	104.3%	1
	Austin	\$6,447	103.0%	Temple*	\$9,967	104.2%	2
3	Beaumont	\$6,417	102.5%	Texas City*	\$9,874	103.2%	1
	Mesquite	\$6,370	101.7%	Longview	\$9,848	102.9%	
	Texas City	\$6,368	101.7%	Beaumont*	\$9,841	102.8%	-1
	Sherman	\$6,305	100.7%	Amarillo*	\$9,835	102.8%	-1
	Odessa	\$6,299	100.6%	Lufkin*	\$9,668	101.0%	1
	College Station	\$6,290	100.4%	Pasadena*	\$9,571	100.0%	-1
	Galveston	\$6,262	100.0%	Galveston	\$9,569	100.0%	
	Wichita Falls	\$6,142	98.1%	San Angelo*	\$9,534	99.6%	1
	Longview	\$6,140	98.0%	Victoria*	\$9,517	99.5%	1
	Lubbock	\$6,058	96.7%	Lubbock	\$9,510	99.4%	
4	Denton	\$6,006	95.9%	Denton	\$9,271	96.9%	
	Texarkana	\$5,858	93.5%	Texarkana	\$9,208	96.2%	
	Lufkin	\$5,802	92.7%	Abilene	\$9,151	95.6%	
	Temple	\$5,798	92.6%	Haltom City*	\$9,079	94.9%	-2
	San Angelo	\$5,718	91.3%	Corpus Christi	\$9,072	94.8%	
	Corpus Christi	\$5,686	90.8%	Bryan	\$9,023	94.3%	
	Bryan	\$5,645	90.1%	Wichita Falls*	\$9,019	94.2%	-1
	Waco	\$5,645	90.1%	Odessa*	\$8,943	93.5%	-1
	Abilene	\$5,490	87.7%	San Antonio*	\$8,400	87.8%	1
	Port Arthur	\$5,372	85.8%	Waco	\$7,868	82.2%	
5	Victoria	\$5,288	84.4%	Paris*	\$7,747	81.0%	1
	Killeen	\$5,277	84.3%	McAllen*	\$7,574	79.2%	1
	Nacogdoches	\$5,267	84.1%	Port Arthur	\$7,491	78.3%	
	San Antonio	\$5,206	83.1%	El Paso	\$7,411	77.4%	
	Paris	\$5,183	82.8%	Killeen*	\$7,395	77.3%	-1
	El Paso	\$5,140	82.1%	Nacogdoches*	\$7,315	76.4%	-1
	McAllen	\$4,366	69.7%	College Station*	\$7,148	74.7%	-2
	Harlingen	\$4,105	65.6%	Harlingen	\$7,087	74.1%	
	Del Rio	\$3,955	63.2%	Del Rio	\$5,805	60.7%	
	Edinburg	\$3,624	57.9%	Edinburg	\$5,768	60.3%	
Laredo	\$3,262	52.1%	Laredo	\$5,388	56.3%		
Mission	\$3,262	52.1%	Mission	\$5,315	55.5%		
Brownsville	\$3,198	51.1%	Brownsville	\$4,850	50.7%		
MEDIAN		\$6,262			\$9,569		

\* CITIES WHICH MOVED UP/DOWN QUINTILES

NOTE: All Dollar Amounts are expressed in 1982 Dollars

**TABLE A-2: MSA COUNTIES, PER CAPITA INCOME AND CHANGES, 1972-1992**

QUINTILE	COUNTY	1972 PCI	% OF MEDIAN	COUNTY	1992 PCI	% OF MEDIAN	MOVEMENT (Quintiles)
1	Dallas	\$7,871	140.4%	Collin*	\$15,823	173.9%	1
	Midland	\$7,477	133.4%	Dallas	\$12,536	137.8%	
	Harris	\$7,292	130.1%	Denton*	\$12,429	136.6%	4
	Randall	\$7,226	128.9%	Midland	\$11,898	130.8%	
	Tarrant	\$7,112	126.9%	Randall	\$11,861	130.3%	
	Galveston	\$6,501	116.0%	Harris	\$11,732	128.9%	
	Travis	\$6,467	115.4%	Tarrant	\$11,714	128.7%	
2	Collin	\$6,357	113.4%	Travis*	\$11,671	128.3%	-1
	Ector	\$6,234	111.2%	Galveston*	\$10,799	118.7%	-1
	Jefferson	\$6,209	110.8%	Smith	\$9,834	108.1%	
	Wichita	\$5,972	106.6%	Gregg*	\$9,614	105.6%	1
	Potter	\$5,920	105.6%	Jefferson	\$9,530	104.7%	
	Smith	\$5,914	105.5%	Grayson*	\$9,416	103.5%	1
	Lubbock	\$5,849	104.4%	Victoria*	\$9,412	103.4%	2
3	Gregg	\$5,841	104.2%	Lubbock*	\$9,267	101.8%	-1
	Tom Green	\$5,699	101.7%	Bowie	\$9,165	100.7%	
	Grayson	\$5,695	101.6%	Bexar	\$9,128	100.3%	
	Bowie	\$5,604	100.0%	Taylor*	\$9,100	100.0%	1
	Brazos	\$5,566	99.3%	Wichita*	\$8,979	98.7%	-1
	Bexar	\$5,533	98.7%	Tom Green	\$8,861	97.4%	
	McLennan	\$5,508	98.3%	Nueces*	\$8,795	96.6%	1
4	Taylor	\$5,449	97.2%	Angelina	\$8,681	95.4%	
	Nueces	\$5,434	97.0%	McLennan*	\$8,632	94.9%	-1
	Bell	\$5,234	93.4%	Brazos*	\$8,479	93.2%	-1
	Angelina	\$5,073	90.5%	Bell	\$8,418	92.5%	
	El Paso	\$5,034	89.8%	Ector*	\$8,410	92.4%	-2
	Victoria	\$5,015	89.5%	Lamar	\$8,112	89.1%	
	Lamar	\$4,940	88.1%	Potter*	\$7,895	86.8%	-2
5	Nacogdoches	\$4,869	86.9%	Nacogdoches	\$7,586	83.4%	
	Coryell	\$4,585	81.8%	El Paso*	\$7,062	77.6%	-1
	Denton	\$4,353	77.7%	Coryell	\$6,887	75.7%	
	Val Verde	\$4,228	75.4%	Val Verde	\$6,100	67.0%	
	Cameron	\$3,391	60.5%	Cameron	\$5,499	60.4%	
	Webb	\$3,327	59.4%	Webb	\$5,226	57.4%	
	Hidalgo	\$3,187	56.9%	Hidalgo	\$5,117	56.2%	
<b>MEDIAN</b>		<b>\$5,604</b>			<b>\$9,100</b>		

\* COUNTIES WHICH MOVED UP/DOWN QUINTILES

NOTE: All Dollar Amounts are expressed in 1982 Dollars

**TABLE A-3: NON-METRO CITIES, PER CAPITA INCOME AND CHANGES, 1972-1992**

QUINTILE	CITY	1972 PCI	% OF MEDIAN	CITY	1992 PCI	% OF MEDIAN	MOVEMENT (Quintiles)
1	Groves	\$6,811	121.9%	Groves	\$10,562	134.5%	
	Pampa	\$6,598	118.1%	Pampa	\$10,018	127.6%	
	Borger	\$6,497	116.3%	Greenville*	\$9,442	120.2%	1
	Mineral Wells	\$6,473	115.9%	Cleburne	\$9,311	118.6%	
	Freeport	\$6,086	109.0%	Bay City*	\$9,210	117.3%	3
	Cleburne	\$6,065	108.6%	Borger	\$9,092	115.8%	
2	Greenville	\$5,994	107.3%	New Braunfels*	\$9,089	115.7%	1
	Gainesville	\$5,875	105.2%	Corsicana*	\$8,454	107.7%	1
	Plainview	\$5,824	104.3%	Denison*	\$8,352	106.4%	1
	Lamesa	\$5,798	103.8%	Brownfield	\$8,266	105.3%	
	Snyder	\$5,759	103.1%	Gainesville	\$8,124	103.5%	
	Big Spring	\$5,716	102.3%	Snyder	\$7,997	101.8%	
3	Denison	\$5,645	101.1%	Plainview*	\$7,921	100.9%	-1
	Corsicana	\$5,585	100.0%	Big Spring*	\$7,921	100.9%	-1
	Palestine	\$5,357	95.9%	Palestine	\$7,785	99.1%	
	Brownwood	\$5,355	95.9%	Vernon*	\$7,419	94.5%	1
	New Braunfels	\$5,305	95.0%	Kingsville*	\$7,207	91.8%	1
4	Bay City	\$5,148	92.2%	Huntsville	\$7,157	91.1%	
	Vernon	\$5,090	91.1%	Sweetwater	\$7,108	90.5%	
	Sweetwater	\$5,073	90.8%	Brownwood*	\$7,089	90.3%	-1
	Kingsville	\$4,637	83.0%	Lamesa*	\$7,015	89.3%	-2
	Alice	\$4,398	78.7%	Mineral Wells*	\$6,959	88.6%	-3
	Huntsville	\$4,308	77.1%	Freeport*	\$6,869	87.5%	-3
5	Seguin	\$4,239	75.9%	Seguin	\$6,850	87.2%	
	Beeville	\$4,133	74.0%	Alice*	\$6,572	83.7%	-1
	Uvalde	\$4,095	73.3%	Uvalde	\$6,295	80.2%	
	Eagle Pass	\$2,639	47.2%	Beeville	\$6,251	79.6%	
	Brownfield	NA	NA	Eagle Pass	\$4,414	56.2%	
<b>MEDIAN</b>		<b>\$5,585</b>			<b>\$7,853</b>		

\* CITIES WHICH MOVED UP/DOWN QUINTILES

NOTE: All Dollar Amounts are expressed in 1982 Dollars

**TABLE A-4: NON-METRO COUNTIES, PER CAPITA INCOME AND CHANGES, 1972-1992**

QUINTILE	COUNTY	1972 PCI	% OF MEDIAN	COUNTY	1992 PCI	% OF MEDIAN	MOVEMENT (Quintiles)
1	Gray	\$6,557	125.8%	Brazoria	\$10,394	127.6%	1
	Hutchinson	\$6,359	122.0%	Comal*	\$10,342	126.9%	
	Brazoria	\$6,243	119.7%	Gray	\$9,856	121.0%	
	Palo Pinto	\$6,155	118.0%	Johnson	\$9,303	114.2%	
	Johnson	\$5,847	112.1%	Hunt*	\$9,142	112.2%	
2	Howard	\$5,632	108.0%	Hutchinson*	\$9,012	110.6%	-1
	Scurry	\$5,598	107.4%	Wilbarger*	\$8,979	110.2%	1
	Cooke	\$5,505	105.6%	Cooke	\$8,948	109.8%	1
	Hunt	\$5,477	105.1%	Hale*	\$8,815	108.2%	1
	Comal	\$5,424	104.0%	Matagorda*	\$8,778	107.7%	2
3	Terry	\$5,376	103.1%	Guadalupe*	\$8,744	107.3%	1
	Dawson	\$5,370	103.0%	Terry	\$8,381	102.9%	
	Hale	\$5,262	100.9%	Howard*	\$8,215	100.8%	-1
	Brown	\$5,166	99.1%	Navarro	\$8,079	99.2%	
	Wilbarger	\$5,123	98.2%	Scurry*	\$7,975	97.9%	-1
4	Navarro	\$5,099	97.8%	Walker*	\$7,787	95.6%	2
	Nolan	\$4,895	93.9%	Palo Pinto*	\$7,701	94.5%	-3
	Matagorda	\$4,860	93.2%	Brown*	\$7,561	92.8%	-1
	Guadalupe	\$4,733	90.8%	Nolan	\$7,515	92.3%	
	Kleberg	\$4,622	88.6%	Kleberg	\$7,394	90.8%	
5	Anderson	\$4,609	88.4%	Dawson*	\$7,359	90.3%	-1
	Bee	\$4,333	83.1%	Anderson*	\$7,242	88.9%	-1
	Jim Wells	\$4,194	80.4%	Uvalde	\$6,656	81.7%	
	Walker	\$4,097	78.6%	Bee	\$6,652	81.7%	
	Uvalde	\$4,092	78.5%	Jim Wells	\$6,236	76.5%	
	Maverick	\$2,759	52.9%	Maverick	\$4,001	49.1%	
	<b>MEDIAN</b>	<b>\$5,214</b>			<b>\$8,147</b>		

\* COUNTIES WHICH MOVED UP/DOWN QUINTILES  
 NOTE: All Dollar Amounts are expressed in 1982 Dollars

**TABLE A-5: MSA CITIES, PCI LEVELS AND REAL CHANGE IN PCI, 1972-1992**

Cities are classified as above/below median based on their PCI level in 1972

CATEGORY	LEVEL OF PCI GROWTH: 1972-1992	CITY NAME	1972 PCI (ADJ \$25s)	1992 PCI (ADJ \$25s)	REAL CHANGE IN PCI 1972-1992
ABOVE MEDIAN CITIES	HIGH GROWTH (AVG = 84.3%)	Plano	\$7,342	\$16,840	129.4%
		Carrollton	\$6,933	\$14,714	112.2%
		Duncanville	\$6,888	\$13,166	91.1%
		Richardson	\$8,961	\$16,466	83.7%
		Austin	\$6,447	\$11,032	71.1%
		Mesquite	\$6,370	\$10,893	71.0%
		Irving	\$7,533	\$12,875	68.3%
		Hurst	\$7,675	\$12,827	67.1%
	Midland	\$7,602	\$12,503	64.5%	
	MEDIUM GROWTH (AVG = 57.0%)	Garland	\$7,097	\$11,620	63.7%
		Arlington	\$7,854	\$12,533	59.6%
		Sherman	\$6,305	\$9,978	58.2%
		Dallas	\$7,951	\$12,580	58.2%
		Texas City	\$6,368	\$9,874	55.1%
		North Richland Hills	\$7,974	\$12,280	54.0%
		Grand Prairie	\$6,895	\$10,613	53.9%
	Tyler	\$6,742	\$10,342	53.4%	
	LOW GROWTH (AVG = 39.9%)	Beaumont	\$6,417	\$9,841	53.3%
		Amarillo	\$6,471	\$9,835	52.0%
		Houston	\$7,275	\$11,006	51.3%
		Fort Worth	\$6,959	\$10,158	46.0%
Odessa		\$6,299	\$8,943	42.0%	
Baytown		\$7,370	\$10,004	35.7%	
Pasadena		\$7,125	\$9,571	34.3%	
Haltom City		\$6,940	\$9,079	30.8%	
College Station		\$6,290	\$7,148	13.6%	
BELOW MEDIAN CITIES	HIGH GROWTH (AVG = 69.6%)	Victoria	\$5,288	\$9,517	80.0%
		McAllen	\$4,366	\$7,574	73.5%
		Harlingen	\$4,105	\$7,087	72.6%
		Temple	\$5,798	\$9,967	71.9%
		San Angelo	\$5,718	\$9,534	66.7%
		Abilene	\$5,490	\$9,151	66.7%
		Lufkin	\$5,802	\$9,668	66.6%
		Laredo	\$3,262	\$5,388	65.1%
	Mission	\$3,262	\$5,315	62.9%	
	MEDIUM GROWTH (AVG = 59.2%)	San Antonio	\$5,206	\$8,400	61.3%
		Longview	\$6,140	\$9,848	60.4%
		Bryan	\$5,645	\$9,023	59.8%
		Corpus Christi	\$5,686	\$9,072	59.6%
		Edinburg	\$3,624	\$5,768	59.2%
		Texarkana	\$5,858	\$9,208	57.2%
	Lubbock	\$6,058	\$9,510	57.0%	
	LOW GROWTH (AVG = 45.8%)	Denton	\$6,006	\$9,271	54.4%
		Galveston	\$6,262	\$9,569	52.8%
		Brownsville	\$3,198	\$4,850	51.7%
		Paris	\$5,183	\$7,747	49.5%
		Wichita Falls	\$6,142	\$9,019	46.8%
Del Rio		\$3,955	\$5,805	46.8%	
El Paso		\$5,140	\$7,411	44.2%	
Killeen		\$5,277	\$7,395	40.1%	
Port Arthur		\$5,372	\$7,491	39.4%	
Waco		\$5,645	\$7,868	39.4%	
Nacogdoches	\$5,267	\$7,315	38.9%		
<b>MEDIAN</b>		<b>\$6,276</b>			

Mean PCI Growth Rate of Above Median Cities = 60.5%  
 Median PCI Growth Rate of Above Median Cities = 56.6%

Mean PCI Growth Rate of Below Median Cities = 57.2%  
 Median PCI Growth Rate of Below Median Cities = 59.2%

NOTE: All Dollar Amounts are expressed in 1982 Dollars

**TABLE A-6: MSA COUNTIES, PCI LEVELS AND REAL CHANGE IN PCI, 1972-1992**

Counties are classified as above/below median based on their PCI level in 1972

CATEGORY	LEVEL OF PCI GROWTH: 1972-1992	COUNTY NAME	1972 PCI (ADJ 82\$)	1992 PCI (ADJ 82\$)	REAL CHANGE IN PCI: 1972-1992
ABOVE MEDIAN COUNTIES	HIGH GROWTH (AVG = 82.0%)	Collin	\$6,357	\$15,823	148.9%
		Travis	\$6,467	\$11,671	80.5%
		Smith	\$5,914	\$9,834	66.3%
		Galveston	\$6,501	\$10,799	66.1%
		Grayson	\$5,695	\$9,416	65.4%
		Tarrant	\$7,112	\$11,714	64.7%
	MEDIUM GROWTH (AVG = 61.9%)	Gregg	\$5,841	\$9,614	64.6%
		Randall	\$7,226	\$11,861	64.2%
		Bowie	\$5,604	\$9,165	63.5%
		Harris	\$7,292	\$11,732	60.9%
		Dallas	\$7,871	\$12,536	59.3%
		Midland	\$7,477	\$11,898	59.1%
	LOW GROWTH (AVG = 47.7%)	Lubbock	\$5,849	\$9,267	58.4%
		Tom Green	\$5,699	\$8,861	55.5%
		Jefferson	\$6,209	\$9,530	53.5%
		Wichita	\$5,972	\$8,979	50.4%
		Ector	\$6,234	\$8,410	34.9%
		Potter	\$5,920	\$7,895	33.4%
BELOW MEDIAN COUNTIES	HIGH GROWTH (AVG = 90.1%)	Denton	\$4,353	\$12,429	185.6%
		Victoria	\$5,015	\$9,412	87.7%
		Angelina	\$5,073	\$8,681	71.1%
		Taylor	\$5,449	\$9,100	67.0%
		Bexar	\$5,533	\$9,128	65.0%
		Lamar	\$4,940	\$8,112	64.2%
	MEDIUM GROWTH (AVG = 60.5%)	Cameron	\$3,391	\$5,499	62.1%
		Nueces	\$5,434	\$8,795	61.8%
		Bell	\$5,234	\$8,418	60.8%
		Hidalgo	\$3,187	\$5,117	60.5%
		Webb	\$3,327	\$5,226	57.1%
	LOW GROWTH (AVG = 49.9%)	McLennan	\$5,508	\$8,632	56.7%
		Nacogdoches	\$4,869	\$7,586	55.8%
		Brazos	\$5,566	\$8,479	52.4%
		Coryell	\$4,585	\$6,887	50.2%
		Val Verde	\$4,228	\$6,100	44.3%
		El Paso	\$5,034	\$7,062	40.3%
	<b>MEDIAN</b>			<b>\$5,585</b>	

Mean PCI growth rate of above median counties = 63.9%  
 Median PCI growth rate of above median counties = 62.2%

Mean PCI growth rate of below median counties = 67.2%  
 Median PCI growth rate of below median counties = 60.8%

NOTE: All Dollar Amounts are expressed in 1982 Dollars

**TABLE A-7: NON-METRO CITIES, PCI LEVELS AND REAL CHANGE IN PCI, 1972-1992**

Cities are classified as above/below median based on their PCI level in 1972

CATEGORY	LEVEL OF PCI GROWTH: 1972-1992	CITY	1972 PCI (ADJ 82\$S)	1992 PCI (ADJ 82\$S)	REAL CHANGE IN PCI: 1972-1992
ABOVE MEDIAN CITIES	HIGH GROWTH (AVG = 53.9%)	Greenville	\$5,994	\$9,442	57.5%
		Groves	\$6,811	\$10,562	55.1%
		Cleburne	\$6,065	\$9,311	53.5%
		Pampa	\$6,598	\$10,018	51.8%
		Corsicana	\$5,585	\$8,454	51.4%
	MEDIUM GROWTH (AVG = 42.1%)	Denison	\$5,645	\$8,352	48.0%
		Palestine	\$5,357	\$7,785	45.3%
		Borger	\$6,497	\$9,092	39.9%
		Snyder	\$5,759	\$7,997	38.9%
		Big Spring	\$5,716	\$7,921	38.6%
	LOW GROWTH (AVG = 23.1%)	Gainesville	\$5,875	\$8,124	38.3%
		Plainview	\$5,824	\$7,921	36.0%
		Lamesa	\$5,798	\$7,015	21.0%
		Freeport	\$6,086	\$6,869	12.9%
		Mineral Wells	\$6,473	\$6,959	7.5%
BELOW MEDIAN CITIES	HIGH GROWTH (AVG = 70.9%)	Bay City	\$5,148	\$9,210	78.9%
		New Braunfels	\$5,305	\$9,089	71.3%
		Eagle Pass	\$2,639	\$4,414	67.3%
		Huntsville	\$4,308	\$7,157	66.1%
	MEDIUM GROWTH (AVG = 55.5%)	Seguin	\$4,239	\$6,850	61.6%
		Kingsville	\$4,637	\$7,207	55.4%
		Uvalde	\$4,095	\$6,295	53.7%
		Beeville	\$4,133	\$6,251	51.2%
	LOW GROWTH (AVG = 41.9%)	Alice	\$4,398	\$6,572	49.4%
		Vernon	\$5,090	\$7,419	45.7%
		Sweetwater	\$5,073	\$7,108	40.1%
		Brownwood	\$5,355	\$7,089	32.4%
		Brownfield	NA	\$8,266	NA
<b>MEDIAN</b>			<b>\$5,357</b>		

Mean PCI Growth Rate of Above Median Cities = 39.7%  
 Median PCI Growth Rate of Above Median Cities = 39.9%

Mean PCI Growth Rate of Below Median Cities = 56.1%  
 Median PCI Growth Rate of Below Median Cities = 54.6%

NOTE: All Dollar Amounts are expressed in 1982 Dollars



**TABLE A-8: NON-METRO COUNTIES, PCI LEVELS AND REAL CHANGE IN PCI, 1972-1992**

Counties are classified as above/below median based on their PCI level in 1972

CATEGORY	LEVEL OF PCI GROWTH: 1972-1992	COUNTY	1972 PCI (ADJ 82\$\$)	1992 PCI (ADJ 82\$\$)	REAL CHANGE IN PCI: 1972-1992
ABOVE MEDIAN COUNTIES	HIGH GROWTH (AVG = 71.6%)	Comal	\$5,424	\$10,342	90.7%
		Hunt	\$5,477	\$9,142	66.9%
		Brazoria	\$6,243	\$10,394	66.5%
		Cooke	\$5,505	\$8,948	62.5%
	MEDIUM GROWTH (AVG = 55.1%)	Johnson	\$5,847	\$9,303	59.1%
		Terry	\$5,376	\$8,381	55.9%
		Gray	\$6,557	\$9,856	50.3%
	LOW GROWTH (AVG = 38.4%)	Howard	\$5,632	\$8,215	45.9%
		Scurry	\$5,598	\$7,975	42.5%
		Hutchinson	\$6,359	\$9,012	41.7%
		Dawson	\$5,370	\$7,359	37.0%
		Palo Pinto	\$6,155	\$7,701	25.1%
BELOW MEDIAN COUNTIES	HIGH GROWTH (AVG = 79.6%)	Walker	\$4,097	\$7,787	90.1%
		Guadalupe	\$4,733	\$8,744	84.7%
		Matagorda	\$4,860	\$8,778	80.6%
		Wilbarger	\$5,123	\$8,979	75.3%
		Hale	\$5,262	\$8,815	67.5%
	MEDIUM GROWTH (AVG = 59.6%)	Uvalde	\$4,092	\$6,656	62.7%
		Kleberg	\$4,622	\$7,394	60.0%
		Navarro	\$5,099	\$8,079	58.4%
		Anderson	\$4,609	\$7,242	57.1%
	LOW GROWTH (AVG = 49.4%)	Nolan	\$4,895	\$7,515	53.5%
		Bee	\$4,333	\$6,652	53.5%
		Jim Wells	\$4,194	\$6,236	48.7%
		Brown	\$5,166	\$7,561	46.4%
		Maverick	\$2,759	\$4,001	45.0%
	<b>MEDIAN</b>			<b>\$5,316</b>	

Mean PCI growth rate of above median counties = 53.7%  
 Median PCI growth rate of above median counties = 53.1%

Mean PCI growth rate of below median counties = 63.1%  
 Median PCI growth rate of below median counties = 59.2%

NOTE: All Dollar amounts are expressed in 1982 Dollars

**TABLE A-9: PRIVATE EMPLOYMENT PER 100 RESIDENTS (PEP100), MSA CITIES, 1972-1992**

Cities are classified as above/below median based on their PEP100 in 1972

Level of PEP100 Growth: 1972-1992	Cities	Above (=A)/ Below (=B) Median PEP100	1972 PEP100	1992 PEP100	Change in PEP100 Between 1972-92	1992 PEP100 AS % OF 1992 MEDIAN PEP100
<b>VERY HIGH (Avg=78.8%)</b>	Bryan	B	17.1	35.2	106.1%	94.2%
	Denton	B	30.4	46.1	51.5%	123.3%
<b>HIGH (Avg=21.9%)</b>	Texarkana	B	21.7	32.1	47.8%	85.9%
	Carrollton	A	36.7	49.9	36.2%	133.6%
	Richardson	A	38.2	48.1	25.9%	128.8%
	Austin	B	30.7	38.4	25.1%	102.8%
	Laredo	B	23.4	28.7	22.7%	76.9%
	Plano	A	40.1	48.5	21.1%	129.8%
	San Antonio	B	27.9	33.8	21.0%	90.4%
	Hurst	A	40.3	48.5	20.5%	129.8%
	Irving	A	42.6	50.2	17.8%	134.3%
	Killeen	B	20.5	23.9	16.5%	63.9%
	Corpus Christi	B	30.6	35.5	16.1%	95.1%
	Mesquite	A	38.7	44.5	15.1%	119.1%
	Victoria	B	35.7	40.9	14.6%	109.6%
	North Richland Hills	A	40.5	46.3	14.3%	123.9%
Garland	A	40.3	45.5	12.9%	121.9%	
<b>MEDIUM (Avg=7.9%)</b>	Arlington	A	43.1	48.4	12.2%	129.6%
	Harlingen	B	29.3	32.8	12.1%	87.8%
	Duncanville	A	40.7	45.6	11.9%	122.0%
	El Paso	B	28.1	31.1	10.8%	83.2%
	McAllen	B	28.4	31.4	10.4%	83.9%
	Nacogdoches	B	35.6	39.1	9.8%	104.6%
	Brownsville	B	25.3	27.7	9.3%	74.1%
	Longview	A	37.3	40.4	8.6%	108.2%
	Fort Worth	A	38.2	41.4	8.5%	110.8%
	Lubbock	B	35.9	38.9	8.2%	104.0%
	Wichita Falls	B	30.5	32.9	7.9%	88.1%
	Beaumont	A	36.1	38.9	7.8%	104.1%
	Dallas	A	41.0	44.1	7.6%	118.1%
	Sherman	A	38.7	41.5	7.2%	111.1%
	Grand Prairie	A	40.8	43.1	5.6%	115.4%
	Houston	A	39.4	41.2	4.7%	110.3%
	Galveston	B	34.2	35.8	4.6%	95.7%
	San Angelo	B	33.3	34.8	4.6%	93.1%
	Waco	B	34.3	35.3	3.0%	94.6%
	Haltom City	A	41.3	42.5	2.8%	113.6%
<b>LOW (Avg=-4.2%)</b>	Paris	B	35.9	36.5	1.7%	97.8%
	Lufkin	B	35.4	35.8	1.2%	95.9%
	Edinburg	B	29.0	29.1	0.4%	77.9%
	Temple	A	37.2	37.4	0.3%	100.0%
	Amarillo	A	40.0	39.8	-0.4%	106.5%
	Tyler	A	39.4	39.1	-0.8%	104.6%
	College Station	B	30.3	30.0	-1.2%	80.2%
	Port Arthur	B	32.2	31.5	-1.9%	84.4%
	Pasadena	A	40.1	38.4	-4.2%	102.7%
	Abilene	B	33.3	31.7	-4.7%	84.9%
	Baytown	A	38.2	36.1	-5.3%	96.6%
	Mission	B	25.5	24.1	-5.7%	64.4%
	Texas City	A	37.7	34.9	-7.4%	93.4%
	Odessa	A	38.4	33.5	-12.6%	89.8%
	Del Rio	B	26.2	22.7	-13.1%	60.8%
	Midland	A	39.1	33.9	-13.3%	90.8%
	<b>MEDIAN VALUES</b>			<b>35.93</b>	<b>37.37</b>	

Mean PEP100 Growth Rate of Above Median MSA cities = 7.6%  
 Mean PEP100 Growth Rate of Below Median MSA cities = 14.0%

**NOTE: All PEP100 figures are number of private employees per 100 residents**

**TABLE A-10: PRIVATE EMPLOYMENT PER 100 RESIDENTS (PEP100), MSA COUNTIES, 1972-1992**

Counties are classified as above/below median based on their PEP100 In 1972

Level of PEP100 Growth: 1972-1992	Counties	Above (=A)/ Below (=B) Median PEP100	1972 PEP100	1992 PEP100	Change In PEP100 Between 1972-92	1992 PEP100 AS % OF 1992 MEDIAN PEP100
<b>VERY HIGH (AVG=70.4%)</b>	Travis	B	21.9	38.3	74.9%	107.1%
	Brazos	B	19.7	33.5	69.9%	93.9%
	Bell	B	17.9	29.8	66.4%	83.5%
<b>HIGH (AVG=38.4%)</b>	Denton	A	31.0	47.8	54.3%	133.9%
	Bexar	B	22.7	33.8	49.3%	94.7%
	Coryell	B	13.7	19.6	43.3%	54.8%
	Nacogdoches	B	27.8	39.1	40.6%	109.4%
	Bowie	B	24.5	34.4	40.1%	96.2%
	Webb	B	20.3	28.2	38.7%	78.9%
	Wichita	B	24.8	33.6	35.7%	94.1%
	Nueces	B	26.0	35.0	34.5%	97.9%
	Victoria	A	30.7	41.2	33.9%	115.2%
	Randall	A	36.5	48.5	33.0%	135.8%
	Collin	A	36.1	48.0	32.8%	134.4%
	Lubbock	B	29.2	38.5	31.7%	107.7%
Val Verde	B	16.8	22.0	30.9%	61.5%	
<b>MEDIUM (AVG=21.8%)</b>	El Paso	B	23.5	29.8	26.8%	83.4%
	Cameron	B	22.8	28.6	25.6%	80.0%
	Tarrant	A	35.9	44.8	24.8%	125.3%
	Galveston	B	29.5	36.3	23.0%	101.6%
	Gregg	A	32.8	40.3	23.0%	112.8%
	Angelina	B	28.9	35.3	22.2%	98.9%
	Tom Green	A	29.6	35.7	20.8%	100.0%
	McLennan	A	32.0	38.4	19.8%	107.4%
	Grayson	A	33.8	40.4	19.6%	113.1%
	Jefferson	A	31.8	37.4	17.9%	104.8%
	Dallas	A	38.1	44.4	16.7%	124.4%
<b>LOW (AVG=6.5%)</b>	Hidalgo	B	22.2	25.6	15.5%	71.7%
	Harris	A	35.7	41.1	15.1%	115.2%
	Smith	A	35.0	39.3	12.4%	110.0%
	Lamar	A	34.7	38.9	11.9%	108.8%
	Taylor	A	29.5	32.3	9.4%	90.5%
	Potter	A	32.7	32.5	-0.5%	91.0%
	Midland	A	36.1	34.3	-4.9%	96.1%
	Ector	A	35.9	33.3	-7.1%	93.3%
<b>MEDIAN VALUES</b>			<b>29.55</b>	<b>35.72</b>		

Mean PEP100 growth of above median counties = 18.5%

Mean PEP100 growth of below median counties = 39.4%

**NOTE: All PEP100 figures are number of private employees per 100 residents**

**TABLE A-11: PRIVATE EMPLOYMENT PER 100 RESIDENTS (PEP100), NON-METRO CITIES, 1972-1992**

Cities are classified as above/below median based on their PEP100 in 1972

Level of PEP100 Growth: 1972-1992	Cities	Above (=A)/ Below (=B) Median PEP100	1972 PEP100	1992 PEP100	Change in PEP100 Between 1972-92	1992 PEP100 AS % OF 1992 MEDIAN PEP100
<b>VERY HIGH (AVG=69.5%)</b>	Plainview	A	35.9	60.8	69.5%	163.6%
	Uvalde	B	32.1	44.4	38.0%	119.3%
<b>HIGH (AVG=28.3%)</b>	Kingsville	B	26.7	35.6	33.6%	95.8%
	Snyder	A	36.9	48.1	30.6%	129.5%
	Beeville	B	25.1	31.8	27.1%	85.7%
	Greenville	A	36.2	43.6	20.4%	117.3%
	Mineral Wells	B	29.1	34.9	20.0%	93.8%
	Palestine	B	33.5	39.8	18.9%	107.2%
<b>MEDIUM (AVG=12.5%)</b>	Lamesa	B	34.5	39.5	14.5%	106.2%
	New Braunfels	A	36.8	41.7	13.4%	112.2%
	Vernon	B	33.1	37.0	11.5%	99.4%
	Alice	B	30.7	34.1	11.1%	91.9%
	Bay City	B	31.1	34.0	9.6%	91.6%
	Denison	A	35.6	38.6	8.4%	103.8%
	<b>LOW (AVG=-6.7%)</b>	Groves	A	36.5	37.6	3.0%
Cleburne		A	37.6	38.4	2.1%	103.2%
Pampa		A	39.3	40.1	1.9%	107.8%
Corsicana		A	38.4	38.6	0.7%	103.9%
Borger		A	39.8	39.7	-0.2%	106.7%
Big Spring		B	31.2	30.8	-1.4%	82.8%
Eagle Pass		B	23.0	22.4	-2.3%	60.3%
Brownwood		A	36.9	35.3	-4.3%	94.9%
Sweetwater		A	35.3	31.1	-12.0%	83.6%
Freeport		A	39.2	32.4	-17.3%	87.1%
Huntsville		B	27.3	21.2	-22.4%	57.0%
Gainesville		A	41.0	29.3	-28.6%	78.8%
<b>N/A</b>		Brownfield	B	NA	28.5	NA
	Seguin	B	NA	37.4	NA	100.6%
<b>MEDIAN VALUES</b>			<b>34.89</b>	<b>37.17</b>		

Mean PEP100 Growth Rate of Above Median Cities = 6.3%

Mean PEP100 Growth Rate of Below Median Cities = 13.2%

**NOTE: All PEP100 figures are number of private employees per 100 residents**

**TABLE A-12: PRIVATE EMPLOYMENT PER 100 RESIDENTS (PEP100), NON-METRO COUNTIES, 1972-1992**

Counties are classified as above/below median based on their PEP100 in 1972

Level of PEP100 Growth: 1972-1992	Counties	Above (=A)/ Below (=B) Median PEP100	1972 PEP100	1992 PEP100	Change in PEP100 Between 1972-92	1992 PEP100 AS % OF 1992 MEDIAN PEP100
<b>VERY HIGH (AVG=70.2%)</b>	Kleberg	B	20.7	35.2	70.2%	97.0%
	<b>HIGH (AVG=47.9%)</b>					
<b>HIGH (AVG=47.9%)</b>	Bee	B	20.7	32.0	54.3%	88.1%
	Scurry	A	30.5	47.0	54.1%	129.4%
	Hale	B	29.5	43.0	45.6%	118.4%
	Dawson	B	28.8	41.2	43.3%	113.5%
	Hunt	A	30.6	43.6	42.2%	119.9%
<b>MEDIUM (AVG=28.7%)</b>	Palo Pinto	B	27.5	37.7	37.0%	103.9%
	Guadalupe	A	30.4	41.6	36.9%	114.4%
	Wilbarger	B	29.8	39.8	33.5%	109.5%
	Walker	B	16.1	21.1	30.5%	58.0%
	Howard	B	25.3	32.4	28.0%	89.2%
	Uvalde	B	26.2	33.2	26.8%	91.4%
	Jim Wells	B	27.3	33.4	22.3%	92.0%
	Navarro	A	31.8	38.8	22.2%	106.9%
	Johnson	A	34.2	41.6	21.6%	114.5%
<b>LOW (AVG=10.1%)</b>	Brown	A	31.3	37.3	19.1%	102.8%
	Comal	A	34.5	40.8	18.3%	112.3%
	Anderson	B	27.9	32.5	16.5%	89.4%
	Hutchinson	A	34.5	40.0	15.9%	110.2%
	Gray	A	35.7	40.9	14.6%	112.5%
	Matagorda	B	28.8	32.4	12.5%	89.1%
	Brazoria	A	31.7	35.3	11.4%	97.2%
	Terry	B	29.1	30.5	4.5%	83.8%
	Nolan	A	31.8	32.7	2.9%	90.1%
	Maverick	B	18.9	19.0	0.3%	52.3%
Cooke	A	32.9	31.5	-4.3%	86.7%	
<b>MEDIAN VALUES</b>			<b>29.66</b>	<b>36.32</b>		

Mean PEP100 growth of above median counties = 21.2%

Mean PEP100 growth of below median counties = 30.4%

**NOTE: All PEP100 figures are number of private employees per 100 residents**

**APPENDIX B:**  
**TABLES ON**  
**PAVEMENT MANAGEMENT SYSTEMS,**  
**SURVEY RESULTS,**  
**AND BRIDGE CONDITIONS**



**TABLE B-1: PAVEMENT MANAGEMENT SYSTEMS IN MSA CITIES**

CITY	NO SYSTEM	ROTATIONAL BASIS	MANUAL SYSTEM	COMPUTERIZED DATABASE	COMPUTERIZED SYSTEM
Abitene					■
Amarillo		■			
Arlington			■		
Austin					■
Baytown				■	
Beaumont			■		
Brownsville				■	
Bryan					■
Carrollton					■
Corpus Christi					■
Dallas				■	
Denton					■
Duncanville					■
Fort Worth			■		
Garland			■		
Grand Prairie	■				
Haltom City					■
Harlingen			■		
Houston					■
Hurst					■
Irving			■	■	
Killeen	■				
Laredo	■				
Lubbock					■
Lufkin			■		
Mesquite	■				
Midland					■
Nacogdoches					■
North Richland Hills					■
Odessa			■		
Pasadena	■				
Plano			■		
Port Arthur	■				
Richardson					■
San Angelo			■		
San Antonio	■				
Temple				■	
Texarkana				■	
Texas City	■				
Tyler				■	
Waco			■		
Wichita Falls			■	■	

**KEY:**

**No System:** Prioritization of maintenance is determined strictly by judgement of a person using no systematic approach.

**Rotational Basis:** Maintenance is done on a rotation or cycle of years.

**Manual System:** Prioritization of maintenance is determined by some form of systematic approach that includes assigning ranking to develop a maintenance prioritization list.

**Computerized Database:** A computerized database is used to keep track of pavement conditions. The database itself does not provide a ranking of pavement conditions or provide prediction capabilities.

**Computerized System:** The system itself actually rates the pavement condition and/or has prediction capabilities.



**TABLE B-2: PAVEMENT MANAGEMENT SYSTEMS IN NON-METRO CITIES**

CITY	NO SYSTEM	ROTATIONAL BASIS	MANUAL SYSTEM	COMPUTERIZED DATABASE	COMPUTERIZED SYSTEM
Bay City			■		
Beeville	■				
Big Spring			■		
Borger		■			
Brownfield			■		
Brownwood				■	
Cleburne					■
Denison	■				
Greenville				■	
Kingsville				■	
Mineral Wells					■
Pampa		■			
Sequin		■			
Snyder		■			
Sweetwater		■			
Vernon		■			

**KEY:**

**No System:** Prioritization of maintenance is determined strictly by judgement of a person using no systematic approach.

**Rotational Basis:** Maintenance is done on a rotation or cycle of years.

**Manual System:** Prioritization of maintenance is determined by some form of systematic approach that includes assigning ranking to develop a maintenance prioritization list.

**Computerized Database:** A computerized database is used to keep track of pavement conditions. The database itself does not provide a ranking of pavement conditions or provide prediction capabilities.

**Computerized System:** The system itself actually rates the pavement condition and/or has prediction capabilities.

**TABLE B-3: TEXAS FISCAL CAPACITY STUDY--Survey Results**

*Question 1: What was the total road mileage for which your city was financially responsible in each of the following years?*

City (Population < 25K)	1972	1977	1982	1987	1992
Brownfield	170.0	185.0	195.0	195.0	200.0
Uvalde	55.0	60.0	63.0	66.0	66.0
Borger	85.0	85.0	105.0	105.0	105.0
Groves	68.6	69.6	69.9	70.5	70.8
Alice	102.5	102.5	102.5	102.5	102.5
Eagle Pass	63.1	70.1	73.8	82.9	87.3
Cleburne	157.8	160.5	161.3	164.0	165.3
Corsicana	118.0	138.0	153.0	159.0	159.0
Mean	102.5	108.8	115.4	118.1	119.5
Median	93.8	93.8	103.8	103.8	103.8
City (Population 25-50K)	1972	1977	1982	1987	1992
Kingsville	98.3	99.7	99.7	100.4	100.4
Lufkin	193.0	206.5	221.0	227.5	230.0
Hurst	107.0	110.5	116.4	125.0	127.5
Duncanville	N/A	N/A	140.0	152.0	157.0
North Richland Hills	N/A	N/A	163.0	176.0	189.0
Mean	132.8	138.9	148.0	156.2	160.8
Median	107.0	110.5	140.0	152.0	157.0
City (Population 50-100K)	1972	1977	1982	1987	1992
College Station	100.0	125.0	150.0	150.0	187.0
Bryan	215.0	230.0	240.0	265.0	270.0
Port Arthur	252.0	294.0	301.0	318.0	325.0
Galveston	195.0	340.0	340.0	345.0	345.0
Denton	196.0	199.0	205.0	240.0	250.0
Richardson	N/A	297.7	300.4	317.8	328.3
Midland	414.0	440.0	475.0	492.0	505.0
Odessa	320.2	336.8	367.0	394.6	363.0
Wichita Falls	560.0	568.0	573.0	577.0	579.5
Brownsville	250.0	285.0	285.0	300.0	350.0
Mean	278.0	311.5	323.6	339.9	350.3
Median	250.0	295.8	300.7	317.9	336.6
City (Population 100-500K)	1972	1977	1982	1987	1992
Waco	404.0	477.0	488.0	499.0	507.0
Abilene	374.0	385.0	456.0	490.0	493.0
Beaumont	597.0	604.0	624.0	641.0	650.0
Laredo	250.0	251.0	255.0	305.0	357.0
Plano	123.0	273.8	408.2	637.2	729.3
Garland	N/A	529.0	560.0	630.5	638.6
Lubbock	786.0	796.0	806.0	816.0	823.0
Corpus Christi	N/A	884.0	1018.0	1001.0	1239.0
Arlington	405.0	551.0	676.0	842.0	901.0
Fort Worth	3375.0	3828.0	4656.0	5027.0	5485.0
Austin	N/A	867.0	1114.0	1574.0	1599.0
Mean	789.3	858.7	1005.6	1133.0	1220.2
Median	404.5	551.0	624.0	641.0	729.3

**TABLE B-4: TEXAS FISCAL CAPACITY STUDY--Survey Results**

*Question 2: What percentage of the pavements on roads and bridges for which your city is financially responsible needed routine maintenance (e.g., sealcoats, overlays, or pothole-filling, etc.) in each of the following years?*

City (Population < 25K)	1972	1977	1982	1987	1992
Brownfield	65.0%	65.0%	65.0%	65.0%	70.0%
Uvalde	N/A	30.0%	20.0%	15.0%	15.0%
Borger	15.0%	15.0%	15.0%	15.0%	15.0%
Groves	14.0%	14.0%	14.0%	14.0%	14.0%
Alice	100.0%	100.0%	100.0%	100.0%	100.0%
Eagle Pass	10.0%	15.0%	25.0%	15.0%	12.0%
Cleburne	70.0%	50.0%	65.0%	60.0%	60.0%
Corsicana	80.0%	80.0%	80.0%	80.0%	80.0%
Mean	50.6%	46.1%	48.0%	45.5%	45.8%
Median	65.0%	40.0%	45.0%	37.5%	37.5%
City (Population 25-50K)	1972	1977	1982	1987	1992
Kingsville	50.0%	52.0%	61.0%	63.0%	65.0%
Hurst	55.0%	45.0%	45.0%	40.0%	40.0%
Duncanville	100.0%	99.0%	99.0%	99.0%	99.0%
North Richland Hills	N/A	N/A	7.0%	8.0%	8.0%
Harlingen	N/A	N/A	5.0%	5.0%	5.0%
Mean	68.3%	65.3%	43.4%	43.0%	43.4%
Median	55.0%	52.0%	45.0%	40.0%	40.0%
City (Population 50-100K)	1972	1977	1982	1987	1992
College Station	35.0%	40.0%	40.0%	40.0%	20.0%
Bryan	45.0%	45.0%	50.0%	50.0%	50.0%
Port Arthur	28.0%	20.0%	17.0%	15.0%	11.0%
Galveston	30.0%	60.0%	60.0%	60.0%	30.0%
Denton	36.0%	30.0%	30.0%	30.0%	25.0%
Richardson		10.0%	10.0%	12.0%	16.5%
Midland	20.0%	20.0%	20.0%	20.0%	20.0%
Odessa	25.0%	14.0%	14.0%	24.0%	37.0%
Wichita Falls	35.0%	35.0%	37.0%	39.0%	40.0%
Brownsville	60.0%	60.0%	70.0%	70.0%	80.0%
Mean	34.9%	33.4%	34.8%	36.0%	33.0%
Median	35.0%	32.5%	33.5%	34.5%	27.5%
City (Population 100-500K)	1972	1977	1982	1987	1992
Waco	82.0%	57.0%	58.0%	51.0%	32.0%
Abilene	11.8%	8.5%	6.0%	6.5%	30.0%
Baumont	18.0%	8.0%	3.0%	1.0%	4.0%
Laredo	100.0%	100.0%	100.0%	100.0%	100.0%
Plano	N/A	1.0%	5.0%	5.0%	5.0%
Garland	N/A	10.0%	7.0%	7.0%	6.0%
Lubbock	60.0%	61.0%	57.0%	53.0%	49.0%
Corpus Christi	N/A	73.0%	70.0%	81.0%	23.0%
Arlington	15.0%	15.0%	35.0%	40.0%	45.0%
Fort Worth	N/A	N/A	35.0%	33.0%	43.0%
Austin	N/A	59.0%	47.0%	42.0%	N/A
Mean	47.8%	39.3%	38.5%	38.1%	30.6%
Median	18.0%	15.0%	35.0%	36.5%	30.0%

**TABLE B-5: TEXAS FISCAL CAPACITY STUDY--Survey Results**

*Question 3: What percentage of local pavement maintenance (from Question#2) were you able to accomplish using local revenues in each of the following years?*

City (Population < 25K)	1972	1977	1982	1987	1992
Brownfield	100.0%	100.0%	100.0%	100.0%	100.0%
Uvalde	N/A	50.0%	100.0%	100.0%	100.0%
Borger	100.0%	100.0%	100.0%	100.0%	100.0%
Groves	100.0%	100.0%	100.0%	100.0%	100.0%
Alice	100.0%	100.0%	100.0%	100.0%	100.0%
Eagle Pass	100.0%	100.0%	100.0%	100.0%	100.0%
Cleburne	60.0%	40.0%	60.0%	55.0%	60.0%
Corsicana	90.0%	90.0%	90.0%	100.0%	100.0%
Mean	92.9%	85.0%	93.8%	94.4%	95.0%
Median	100.0%	100.0%	100.0%	100.0%	100.0%
City (Population 25-50K)	1972	1977	1982	1987	1992
Kingsville	70.0%	75.0%	78.0%	70.0%	85.0%
Lufkin	N/A	N/A	7.0%	2.0%	5.0%
Hurst	80.0%	80.0%	84.0%	85.0%	80.0%
Duncanville	100.0%	100.0%	100.0%	100.0%	100.0%
North Richland Hills	N/A	N/A	100.0%	100.0%	100.0%
Mean	83.3%	85.0%	73.8%	71.4%	74.0%
Median	80.0%	80.0%	84.0%	85.0%	85.0%
City (Population 50-100K)	1972	1977	1982	1987	1992
College Station	100.0%	100.0%	100.0%	100.0%	100.0%
Bryan	10.0%	10.0%	10.0%	5.0%	5.0%
Port Arthur	89.0%	85.0%	80.0%	80.0%	80.0%
Galveston	7.0%	2.0%	2.0%	12.0%	20.0%
Denton	30.0%	30.0%	40.0%	45.0%	50.0%
Richardson	N/A	75.0%	75.0%	50.0%	25.0%
Midland	100.0%	100.0%	100.0%	100.0%	35.0%
Odessa	100.0%	100.0%	100.0%	100.0%	100.0%
Wichita Falls	25.0%	25.0%	20.0%	25.0%	35.0%
Brownsville	10.0%	10.0%	5.0%	5.0%	10.0%
Mean	52.3%	53.7%	53.2%	52.2%	46.0%
Median	30.0%	52.5%	57.5%	47.5%	35.0%
City (Population 100-500K)	1972	1977	1982	1987	1992
Waco	6.0%	7.0%	14.0%	16.0%	23.0%
Abilene	100.0%	100.0%	100.0%	100.0%	100.0%
Beaumont	20.0%	15.0%	12.0%	7.0%	19.0%
Laredo	100.0%	100.0%	100.0%	100.0%	100.0%
Plano	100.0%	100.0%	100.0%	100.0%	100.0%
Garland	N/A	100.0%	100.0%	100.0%	100.0%
Lubbock	11.0%	11.0%	11.0%	58.0%	74.0%
Corpus Christi	N/A	100.0%	100.0%	100.0%	100.0%
Arlington	75.0%	75.0%	67.0%	54.0%	35.0%
Fort Worth	N/A	N/A	19.0%	21.0%	25.0%
Austin	N/A	5.0%	16.1%	23.7%	7.2%
Mean	58.9%	61.3%	58.1%	61.8%	62.1%
Median	75.0%	87.5%	67.0%	58.0%	74.0%

**TABLE B-6: TEXAS FISCAL CAPACITY STUDY--Survey Results**

*Question 4: What percentage of the streets and bridges for which your jurisdiction is financially responsible needed total reconstruction and/or capacity improvements in each of the following years?*

City (Population < 25K)	1972	1977	1982	1987	1992
Brownfield	5.0%	5.0%	5.0%	5.0%	5.0%
Uvalde	N/A	N/A	6.0%	6.0%	3.0%
Borger	0.0%	0.0%	0.0%	0.0%	0.0%
Groves	6.0%	6.0%	6.0%	6.0%	6.0%
Alice	100.0%	100.0%	90.0%	90.0%	90.0%
Eagle Pass	6.0%	0.0%	2.0%	1.0%	0.0%
Cleburne	30.0%	25.0%	35.0%	50.0%	40.0%
Corsicana	20.0%	20.0%	20.0%	20.0%	20.0%
Mean	23.9%	22.3%	20.5%	22.3%	20.5%
Median	6.0%	6.0%	6.0%	6.0%	5.5%
City (Population 25-50K)	1972	1977	1982	1987	1992
Kingsville	12.0%	10.0%	8.0%	10.0%	15.0%
Lufkin	N/A	N/A	N/A	50.0%	70.0%
Hurst	3.0%	3.0%	5.0%	5.0%	5.0%
Duncanville	N/A	N/A	40.0%	25.0%	10.0%
North Richland Hills	N/A	N/A	4.0%	4.0%	1.0%
Mean	7.5%	6.5%	14.3%	18.8%	20.2%
Median	7.5%	6.5%	6.5%	10.0%	10.0%
City (Population 50-100K)	1972	1977	1982	1987	1992
College Station	N/A	N/A	1.0%	1.0%	1.0%
Bryan	45.0%	45.0%	50.0%	50.0%	50.0%
Port Arthur	38.0%	35.0%	34.0%	33.0%	30.0%
Galveston	12.0%	20.0%	20.0%	20.0%	12.0%
Denton	20.0%	20.0%	18.0%	15.0%	18.0%
Richardson	N/A	5.0%	8.0%	10.0%	12.0%
Midland	2.0%	3.0%	3.0%	3.0%	3.0%
Odessa	6.0%	2.0%	3.0%	1.0%	2.0%
Wichita Falls	5.5%	5.8%	6.0%	6.5%	6.9%
Brownsville	15.0%	20.0%	15.0%	25.0%	25.0%
Mean	17.9%	17.3%	15.8%	16.5%	16.0%
Median	13.5%	20.0%	15.0%	15.0%	12.0%
City (Population 100-500K)	1972	1977	1982	1987	1992
Waco	18.0%	23.0%	27.0%	24.0%	20.0%
Abilene	0.7%	0.3%	0.0%	0.6%	1.6%
Beaumont	78.0%	78.0%	71.0%	65.0%	63.7%
Laredo	100.0%	100.0%	100.0%	100.0%	100.0%
Plano	1.0%	5.0%	5.0%	5.0%	10.0%
Garland	N/A	N/A	50.0%	50.0%	50.0%
Lubbock	0.0%	11.0%	22.0%	33.0%	22.0%
Corpus Christi	N/A	25.0%	25.0%	25.0%	16.0%
Arlington	4.0%	4.0%	4.0%	4.0%	5.0%
Fort Worth	N/A	N/A	50.0%	53.0%	35.0%
Austin	N/A	16.3%	13.3%	10.1%	18.8%
Mean	28.8%	29.2%	33.4%	33.6%	31.1%
Median	4.0%	16.3%	25.0%	25.0%	20.0%

**TABLE B-7: TEXAS FISCAL CAPACITY STUDY--Survey Results**

*Question 5: What percentage of the street and bridge construction/reconstruction (from Question #4) were you able to accomplish using local revenues in each of the following years?*

City (Population < 25K)	1972	1977	1982	1987	1992
Brownfield	100.0%	100.0%	100.0%	75.0%	100.0%
Uvalde	N/A	N/A	0.0%	50.0%	0.0%
Groves	100.0%	100.0%	100.0%	100.0%	100.0%
Borger	N/A	N/A	20.0%	20.0%	0.0%
Alice	100.0%	100.0%	100.0%	100.0%	100.0%
Eagle Pass	100.0%	N/A	100.0%	100.0%	N/A
Cleburne	12.0%	10.0%	12.0%	30.0%	30.0%
Corsicana	80.0%	80.0%	80.0%	80.0%	80.0%
Mean	82.0%	78.0%	64.0%	69.4%	58.6%
Median	100.0%	100.0%	90.0%	77.5%	80.0%
City (Population 25-50K)	1972	1977	1982	1987	1992
Kingsville	78.0%	75.0%	77.0%	75.0%	80.0%
Lufkin	N/A	N/A	5.0%	7.0%	7.0%
Hurst	40.0%	30.0%	28.0%	20.0%	33.0%
Duncanville	100.0%	100.0%	100.0%	100.0%	100.0%
North Richland Hills	N/A	N/A	N/A	100.0%	100.0%
Mean	72.7%	68.3%	52.5%	60.4%	64.0%
Median	78.0%	75.0%	52.5%	75.0%	80.0%
City (Population 500-100K)	1972	1977	1982	1987	1992
College Station	N/A	N/A	50.0%	50.0%	100.0%
Bryan	10.0%	10.0%	10.0%	5.0%	5.0%
Port Arthur	25.0%	30.0%	30.0%	50.0%	50.0%
Galveston	5.0%	3.4%	2.5%	2.5%	7.0%
Denton	50.0%	55.0%	60.0%	60.0%	20.0%
Richardson	N/A	3.0%	5.0%	8.0%	10.0%
Midland	0.0%	0.0%	0.0%	0.0%	0.0%
Odessa	100.0%	0.0%	1.0%	0.0%	0.0%
Wichita Falls	10.0%	10.0%	7.0%	2.0%	5.0%
Brownsville	5.0%	5.0%	10.0%	0.0%	0.0%
Mean	25.6%	12.9%	17.6%	17.8%	19.7%
Median	10.0%	5.0%	8.5%	3.8%	6.0%
City (Population 100-500K)	1972	1977	1982	1987	1992
Waco	6.0%	4.0%	2.0%	2.0%	13.0%
Abilene	100.0%	100.0%	100.0%	100.0%	100.0%
Beaumont	0.0%	7.0%	6.0%	1.3%	1.1%
Laredo	100.0%	100.0%	N/A	100.0%	100.0%
Plano	100.0%	100.0%	100.0%	100.0%	100.0%
Garland	N/A	100.0%	100.0%	100.0%	100.0%
Lubbock	0.0%	0.0%	0.0%	7.0%	0.0%
Corpus Christi	N/A	50.0%	40.0%	30.0%	30.0%
Arlington	N/A	N/A	8.0%	2.5%	7.0%
Fort Worth	N/A	N/A	14.0%	2.5%	2.5%
Austin	N/A	N/A	12.7%	20.3%	4.7%
Mean	51.0%	57.6%	38.3%	42.3%	41.7%
Median	53.0%	75.0%	13.4%	20.3%	13.0%

TABLE B-8: CONDITION OF BRIDGES IN MSA CITIES, 1982

City	Average Sufficiency Rating	1982 Total Number of Bridges	1982 Percent Deficient	1982 Percent Obsolete	1982 Percent Good
Abilene	71.96	21	9.5	19.0	71.4
Amarillo	57.60	3	NA	NA	NA
Arlington	73.86	31	6.5	16.1	77.4
Austin	84.42	167	0.0	12.6	87.4
Baytown	70.91	19	0.0	47.4	52.6
Beaumont	67.55	34	32.4	23.5	44.1
Brownsville	51.72	9	77.8	11.1	11.1
Bryan	89.28	11	9.1	0.0	90.9
Carrollton	85.49	16	0.0	18.8	81.3
College Station	88.80	2	0.0	0.0	100.0
Corpus Christi	72.49	33	18.2	24.2	57.6
Dallas	82.28	248	14.1	23.8	62.1
Del Rio	64.27	2	NA	NA	NA
Denton	73.97	26	23.1	26.9	50.0
Duncanville	90.83	4	0.0	25.0	75.0
Edinburg	NA	NA	NA	NA	NA
El Paso	81.97	98	11.2	10.2	78.6
Fort Worth	70.94	90	8.9	32.2	58.9
Galveston	75.60	6	16.7	0.0	83.3
Garland	79.58	26	7.7	34.6	57.7
Grand Prairie	83.18	30	10.0	23.3	66.7
Haltom City	81.76	6	0.0	0.0	100.0
Harlingen	52.10	1	NA	NA	NA
Houston	86.90	422	2.4	23.0	74.6
Hurst	76.18	16	6.3	12.5	81.3
Irving	80.90	61	11.5	13.1	75.4
Killeen	74.49	11	0.0	45.5	54.5
Laredo	72.15	11	18.2	18.2	63.6
Longview	73.73	22	36.4	9.1	54.5
Lubbock	76.53	2	0.0	50.0	50.0
Lufkin	63.54	10	40.0	30.0	30.0
McAllen	80.63	3	0.0	33.3	66.7
Mesquite	76.88	21	9.5	42.9	47.6
Midland	90.44	5	0.0	0.0	100.0
Mission	NA	NA	NA	NA	NA
Nacogdoches	72.62	10	30.0	10.0	60.0
North Richland Hills	79.31	10	0.0	10.0	90.0
Odessa	NA	NA	NA	NA	NA
Paris	80.46	8	12.5	25.0	62.5
Pasadena	54.37	31	58.1	19.4	22.6
Plano	86.40	32	6.3	3.1	90.6
Port Arthur	68.73	9	22.2	44.4	33.3
Richardson	80.92	32	3.1	37.5	59.4
San Angelo	71.15	8	12.5	50.0	37.5
San Antonio	78.83	251	9.6	31.1	59.4
Sherman	78.80	9	33.3	0.0	66.7
Temple	64.22	4	NA	NA	NA
Texarkana	80.14	7	14.3	28.6	57.1
Texas City	65.84	7	42.9	0.0	57.1
Tyler	79.36	27	18.5	55.6	25.9
Victoria	76.64	5	20.0	0.0	80.0
Waco	77.32	33	15.2	27.3	57.6
Wichita Falls	83.42	26	15.4	7.7	76.9

Based on data obtained from the Bridge Inspection, and Appraisal Program (BRINSAP):  
Texas Department of Transportation

TABLE B-9: CONDITION OF BRIDGES IN MSA CITIES, 1989

City	Average Sufficiency Rating	1989 Total Number of Bridges	1989 Percent Deficient	1989 Percent Obsolete	1989 Percent Good
Abilene	70.55	16	50.0	6.3	43.8
Amarillo	47.12	4	NA	NA	NA
Arlington	76.44	48	0.0	39.6	60.4
Austin	78.85	74	1.4	37.8	60.8
Baytown	72.20	0	NA	NA	NA
Beaumont	75.56	30	20.0	13.3	66.7
Brownsville	50.18	10	10.0	80.0	10.0
Bryan	90.05	2	0.0	0.0	100.0
Carrollton	74.90	16	25.0	0.0	75.0
College Station	86.25	1	0.0	0.0	100.0
Corpus Christi	69.80	30	0.0	50.0	50.0
Dallas	81.30	211	5.7	29.4	64.9
Del Rio	56.85	4	25.0	50.0	25.0
Denton	76.80	23	8.7	17.4	73.9
Duncanville	84.31	7	0.0	42.9	57.1
Edinburg	NA	NA	NA	NA	NA
El Paso	84.15	80	5.0	25.0	70.0
Fort Worth	75.14	107	1.9	33.6	64.5
Galveston	70.03	1	0.0	0.0	100.0
Garland	72.35	18	11.1	33.3	55.6
Grand Prairie	77.35	20	10.0	35.0	55.0
Haltom City	82.02	4	0.0	25.0	75.0
Harlingen	48.30	1	NA	NA	NA
Houston	70.53	308	14.0	49.0	37.0
Hurst	79.53	16	0.0	6.3	93.8
Irving	85.96	57	3.5	12.3	84.2
Killeen	66.95	7	NA	NA	NA
Laredo	85.31	13	0.0	0.0	100.0
Longview	86.41	36	5.6	8.3	86.1
Lubbock	NA	NA	NA	NA	NA
Lufkin	69.12	17	29.4	23.5	47.1
McAllen	90.38	6	0.0	0.0	100.0
Mesquite	64.80	12	33.3	41.7	25.0
Midland	90.73	6	0.0	0.0	100.0
Mission	NA	NA	NA	NA	NA
Nacogdoches	76.60	12	25.0	16.7	58.3
North Richland Hills	79.74	8	0.0	37.5	62.5
Odessa	91.28	16	0.0	6.3	93.8
Paris	90.51	8	0.0	0.0	100.0
Pasadena	74.14	17	17.6	17.6	64.7
Plano	91.55	46	0.0	4.3	95.7
Port Arthur	66.51	6	16.7	33.3	50.0
Richardson	80.00	27	0.0	37.0	63.0
San Angelo	78.13	10	10.0	20.0	70.0
San Antonio	78.40	186	2.2	21.0	76.9
Sherman	85.72	11	18.2	0.0	81.8
Temple	76.68	6	0.0	66.7	33.3
Texarkana	89.19	8	0.0	0.0	100.0
Texas City	79.75	3	0.0	33.3	66.7
Tyler	98.70	1	0.0	0.0	100.0
Victoria	87.25	10	0.0	10.0	90.0
Waco	79.29	34	0.0	70.6	29.4
Wichita Falls	86.30	21	4.8	14.3	81.0

Based on data obtained from the Bridge Inspection, and Appraisal Program (BRINSAP);  
Texas Department of Transportation



TABLE B-10 : CONDITION OF BRIDGES IN MSA CITIES, 1992

City	Average Sufficiency Rating	1992 Total Number of Bridges	1992 Percent Deficient	1992 Percent Obsolete	1992 Percent Good
Abilene	76.64	24	8.3	8.3	83.3
Amarillo	90.78	5	0.0	0.0	100.0
Arlington	76.55	68	2.9	39.7	57.4
Austin	83.34	126	3.2	29.4	67.5
Baytown	NA	NA	NA	NA	NA
Beaumont	79.67	30	13.3	6.7	80.0
Brownsville	84.66	10	0.0	20.0	80.0
Bryan	90.02	11	0.0	9.1	90.9
Carrollton	84.31	19	10.5	15.8	73.7
College Station	89.65	3	0.0	0.0	100.0
Corpus Christi	74.03	30	10.0	26.7	63.3
Dallas	83.15	266	3.4	28.9	67.7
Del Rio	67.10	3	0.0	66.7	33.3
Denton	82.89	31	3.2	12.9	83.9
Duncanville	89.76	7	0.0	0.0	100.0
Edinburg	97.00	1	0.0	0.0	100.0
El Paso	88.24	91	0.0	13.2	86.8
Fort Worth	77.50	159	6.9	39.6	53.5
Galveston	56.35	1	0.0	100.0	0.0
Garland	77.17	28	7.1	25.0	67.9
Grand Prairie	83.41	23	4.3	26.1	69.6
Haltom City	80.12	4	0.0	25.0	75.0
Harlingen	59.50	2	0.0	100.0	0.0
Houston	73.75	502	6.6	64.5	28.9
Hurst	77.88	11	0.0	18.2	81.8
Irving	85.60	62	1.6	21.0	77.4
Killeen	79.64	10	0.0	90.0	10.0
Laredo	82.70	18	0.0	33.3	66.7
Longview	88.93	37	5.4	2.7	91.9
Lubbock	83.77	2	0.0	0.0	100.0
Lufkin	64.47	15	40.0	26.7	33.3
McAllen	78.07	9	11.1	22.2	66.7
Mesquite	75.61	31	9.7	41.9	48.4
Midland	91.68	8	0.0	0.0	100.0
Mission	63.00	1	0.0	100.0	0.0
Nacogdoches	71.54	11	36.4	0.0	63.6
North Richland Hills	82.11	11	0.0	27.3	72.7
Odessa	93.38	19	0.0	0.0	100.0
Paris	92.76	9	0.0	11.1	88.9
Pasadena	75.64	30	16.7	23.3	60.0
Plano	90.74	47	0.0	12.8	87.2
Port Arthur	79.24	7	0.0	42.9	57.1
Richardson	79.44	33	0.0	42.4	57.6
San Angelo	78.83	12	16.7	8.3	75.0
San Antonio	81.77	281	2.5	30.2	67.3
Sherman	86.85	11	9.1	27.3	63.6
Temple	74.37	10	10.0	70.0	20.0
Texarkana	84.98	10	0.0	20.0	80.0
Texas City	79.21	5	0.0	0.0	100.0
Tyler	98.20	1	0.0	0.0	100.0
Victoria	83.45	10	0.0	20.0	80.0
Waco	79.97	37	2.7	70.3	27.0
Wichita Falls	90.08	26	7.7	15.4	76.9

Based on data obtained from the Bridge Inspection, and Appraisal Program (BRINSAP):  
Texas Department of Transportation

**APPENDIX C:  
TABLES ON  
FISCAL HEALTH,  
STREET EXPENDITURE MEASURES,  
AND BRIDGE CONDITIONS  
(DATA USED FOR ANALYSIS RESULTS IN TABLES 4-1, 4-2)**



**TABLE C-1: FISCAL HEALTH AND PER CAPITA ROAD AND STREET EXPENDITURE MEASURES, MSA CITIES, 1982 (DATA USED FOR ANALYSIS RESULTS IN TABLE 4-1)**

CITY	Dummy 82	Dummy 87	Dummy 92	Fiscal Health (FSCLELTH) (Percent)	Per Capita (\$) Construction Expenditures (PCCONEXP)	Per Capita (\$) Maintenance Expenditures (PCMNTEXP)	Per Capita (\$) Total Expenditures (PCTOTEXP)
Abilene	1	0	0	4.08	\$26.86	\$23.26	\$50.11
Amarillo	1	0	0	9.53	\$55.25	\$16.97	\$72.22
Arlington	1	0	0	34.74	\$69.53	\$21.56	\$91.09
Austin	1	0	0	1.49	\$48.13	\$8.46	\$56.59
Baytown	1	0	0	25.86	\$34.49	\$32.31	\$66.81
Beaumont	1	0	0	11.11	\$71.69	\$18.13	\$89.82
Brownsville	1	0	0	-51.37	\$8.07	\$11.21	\$19.28
Bryan	1	0	0	-4.53	\$39.94	\$29.35	\$69.29
Carrollton	1	0	0	50.54	\$56.27	\$54.28	\$110.55
College Station	1	0	0	-28.36	\$48.28	\$18.03	\$66.32
Corpus Christi	1	0	0	-4.57	\$16.97	\$18.25	\$35.22
Dallas	1	0	0	26.48	\$31.91	\$16.25	\$48.16
Del Rio	1	0	0				
Denton	1	0	0	18.39	\$26.74	\$12.74	\$39.48
Duncanville	1	0	0	43.77	\$2.64	\$24.13	\$26.76
Edinburg	1	0	0				
El Paso	1	0	0	-33.25	\$11.73	\$8.88	\$20.60
Fort Worth	1	0	0	18.54	\$62.78	\$16.53	\$79.31
Galveston	1	0	0	7.30	\$15.53	\$23.38	\$38.90
Garland	1	0	0	34.75	\$25.15	\$15.72	\$40.87
Grand Prairie	1	0	0	23.50	\$10.24	\$17.90	\$28.14
Haltom City	1	0	0	25.80	\$6.77	\$20.62	\$27.38
Harlingen	1	0	0	-24.86	\$21.06	\$20.73	\$41.79
Houston	1	0	0	22.83	\$25.80	\$24.33	\$50.13
Hurst	1	0	0	46.95	\$7.68	\$23.96	\$31.64
Irving	1	0	0	39.91	\$16.18	\$22.20	\$38.39
Killeen	1	0	0	-17.51	\$9.85	\$11.58	\$21.44
Laredo	1	0	0	-78.21			
Longview	1	0	0	3.05	\$27.49	\$18.01	\$45.50
Lubbock	1	0	0	-1.68	\$43.10	\$14.44	\$57.55
Lufkin	1	0	0				
McAllen	1	0	0	-29.84	\$26.69	\$15.57	\$42.26
Mesquite	1	0	0	29.78	\$33.89	\$16.52	\$50.41
Midland	1	0	0	29.62	\$12.11	\$39.02	\$51.12
Mission	1	0	0				
Nacogdoches	1	0	0				
North Richland Hills	1	0	0	35.60	\$117.82	\$20.16	\$137.99
Odessa	1	0	0	10.17	\$20.02	\$31.08	\$51.10
Paris	1	0	0				
Pasadena	1	0	0	30.90	\$10.27	\$26.36	\$36.63
Plano	1	0	0	36.52	\$94.51	\$14.07	\$108.58
Port Arthur	1	0	0	-5.47	\$33.69	\$27.15	\$60.85
Richardson	1	0	0	58.10	\$9.40	\$22.74	\$32.14
San Angelo	1	0	0	-4.62	\$14.25	\$25.33	\$39.58
San Antonio	1	0	0	-17.22	\$12.43	\$13.60	\$26.03
Sherman	1	0	0	14.75			
Temple	1	0	0	14.56	\$77.35	\$15.96	\$93.31
Texarkana	1	0	0	-6.50			
Texas City	1	0	0	11.92	\$14.73	\$27.54	\$42.27
Tyler	1	0	0	7.46	\$9.63	\$23.03	\$32.66
Victoria	1	0	0	-4.49	\$102.56	\$25.36	\$127.93
Waco	1	0	0	-9.65	\$13.19	\$17.92	\$31.11
Wichita Falls	1	0	0	2.80	\$26.49	\$22.20	\$48.68

NOTE: All Dollar amounts are in 1982 Dollars

**TABLE C-2: FISCAL HEALTH AND PER CAPITA ROAD AND STREET EXPENDITURE MEASURES, MSA CITIES, 1987 (DATA USED FOR ANALYSIS RESULTS IN TABLE 4-1)**

CITY	Dummy 82	Dummy 87	Dummy 92	Fiscal Health (FSC LHLTH) (Percent)	Per Capita (\$) Construction Expenditures (PCCONEXP)	Per Capita (\$) Maintenance Expenditures (PCMNTEXP)	Per Capita (\$) Total Expenditures (PCTOTEXP)
Abilene	0	1	0	-8.40	\$4.22	\$19.98	\$24.20
Amarillo	0	1	0	11.67	\$23.81	\$18.20	\$42.01
Arlington	0	1	0	38.34	\$73.12	\$14.45	\$87.57
Austin	0	1	0	5.83	\$73.41	\$11.75	\$85.17
Baytown	0	1	0	18.29	\$4.96	\$19.82	\$24.78
Beaumont	0	1	0	7.39	\$26.83	\$23.52	\$50.35
Brownsville	0	1	0	-60.99	\$22.08	\$8.03	\$30.11
Bryan	0	1	0	-10.79	\$28.77	\$14.56	\$43.33
Carrollton	0	1	0	64.38	\$85.91	\$35.62	\$121.53
College Station	0	1	0	-38.71	\$31.78	\$12.25	\$44.04
Corpus Christi	0	1	0	-12.80	\$17.58	\$16.17	\$33.75
Dallas	0	1	0	29.00	\$18.12	\$17.90	\$36.02
Del Rio	0	1	0		\$2.07	\$14.10	\$16.17
Denton	0	1	0	17.30	\$25.66	\$9.32	\$34.97
Duncanville	0	1	0	53.62	\$40.61	\$19.01	\$59.61
Edinburg	0	1	0				
El Paso	0	1	0	-37.50	\$11.05	\$6.63	\$17.67
Fort Worth	0	1	0	17.23	\$48.31	\$13.14	\$61.45
Galveston	0	1	0	9.92	\$8.32	\$20.96	\$29.29
Garland	0	1	0	42.57	\$34.93	\$14.45	\$49.38
Grand Prairie	0	1	0	27.34	\$44.09	\$20.29	\$64.38
Haltom City	0	1	0	32.70			
Harlingen	0	1	0	-31.43	\$4.15	\$14.66	\$18.81
Houston	0	1	0	17.11	\$36.71	\$10.05	\$46.76
Hurst	0	1	0	59.25			
Irving	0	1	0	51.05	\$41.78	\$22.18	\$63.96
Killeen	0	1	0	-23.17	\$28.79	\$9.42	\$38.21
Laredo	0	1	0	-86.14	\$29.90	\$7.16	\$37.06
Longview	0	1	0	-0.55	\$15.72	\$16.22	\$31.93
Lubbock	0	1	0	-2.37	\$11.87	\$12.45	\$24.32
Lufkin	0	1	0		\$1.71	\$24.40	\$26.10
McAllen	0	1	0	-37.36	\$11.58	\$10.20	\$21.79
Mesquite	0	1	0	48.60	\$50.13	\$9.63	\$59.76
Midland	0	1	0	20.01	\$14.73	\$26.83	\$41.57
Mission	0	1	0				
Nacogdoches	0	1	0		\$1.07	\$9.88	\$10.95
North Richland Hills	0	1	0	47.94	\$32.45	\$17.18	\$49.63
Odessa	0	1	0	-0.29	\$12.72	\$19.33	\$32.04
Paris	0	1	0		\$8.73	\$49.18	\$57.91
Pasadena	0	1	0	22.87	\$18.44	\$19.60	\$38.03
Plano	0	1	0	63.65	\$128.21	\$16.94	\$145.15
Port Arthur	0	1	0	-11.44	\$29.36	\$23.66	\$53.04
Richardson	0	1	0	79.94	\$68.51	\$21.52	\$90.03
San Angelo	0	1	0	-7.32	\$4.32	\$16.72	\$21.04
San Antonio	0	1	0	-18.49	\$44.21	\$10.19	\$54.40
Sherman	0	1	0	21.56	\$2.24	\$33.87	\$36.12
Temple	0	1	0	19.58	\$73.42	\$11.63	\$85.06
Texarkana	0	1	0	-3.10	\$16.57	\$19.09	\$35.66
Texas City	0	1	0	15.66	\$5.48	\$25.61	\$31.09
Tyler	0	1	0	10.85	\$16.38	\$22.48	\$38.86
Victoria	0	1	0	-7.59	\$39.78	\$26.32	\$66.10
Waco	0	1	0	-13.06	\$14.36	\$16.65	\$31.01
Wichita Falls	0	1	0	-0.76	\$13.27	\$23.50	\$36.77

NOTE: All Dollar amounts are in 1982 Dollars

**TABLE C-3: FISCAL HEALTH AND PER CAPITA ROAD AND STREET EXPENDITURE MEASURES, MSA CITIES, 1992 (DATA USED FOR ANALYSIS RESULTS IN TABLE 4-1)**

CITY	Dummy 82	Dummy 87	Dummy 92	Fiscal Health (FSCHLTH) (Percent)	Per Capita (\$) Construction Expenditures (PCCONEXP)	Per Capita (\$) Maintenance Expenditures (PCMNTEXP)	Per Capita (\$) Total Expenditures (PCTOTEXP)
Abilene	0	0	1	20.01	\$2.35	\$24.89	\$27.24
Amarillo	0	0	1	26.73	\$5.39	\$25.66	\$31.05
Arlington	0	0	1	68.41	\$29.89	\$16.69	\$46.58
Austin	0	0	1	40.06	\$20.85	\$12.44	\$33.09
Baytown	0	0	1	44.45	\$0.68	\$20.37	\$21.05
Beaumont	0	0	1	32.01	\$2.76	\$31.66	\$34.42
Brownsville	0	0	1	-51.03	\$17.96	\$10.82	\$28.78
Bryan	0	0	1	23.74	\$2.62	\$21.54	\$24.16
Carrollton	0	0	1	91.96	\$94.36	\$21.59	\$115.96
College Station	0	0	1	-6.49	\$0.00	\$17.88	\$17.88
Corpus Christi	0	0	1	12.20	\$10.94	\$12.48	\$23.42
Dallas	0	0	1	56.93	\$36.09	\$16.15	\$52.25
Del Rio	0	0	1		\$0.00	\$43.42	\$43.42
Denton	0	0	1	32.41	\$1.98	\$17.96	\$19.94
Duncanville	0	0	1	85.44	\$61.79	\$18.97	\$80.76
Edinburg	0	0	1				
El Paso	0	0	1	-13.77	\$3.78	\$6.21	\$10.00
Fort Worth	0	0	1	36.79	\$30.82	\$16.22	\$47.04
Galveston	0	0	1	22.27	\$0.00	\$8.68	\$8.68
Garland	0	0	1	67.17	\$16.82	\$12.58	\$29.40
Grand Prairie	0	0	1	55.40	\$22.30	\$21.54	\$43.84
Haltom City	0	0	1	45.54	\$6.40	\$7.51	\$13.92
Harlingen	0	0	1	0.65	\$22.43	\$20.44	\$42.87
Houston	0	0	1	41.30	\$19.56	\$26.33	\$45.89
Hurst	0	0	1	79.90	\$5.90	\$23.71	\$29.61
Irving	0	0	1	70.95	\$13.88	\$13.71	\$27.59
Killeen	0	0	1	8.62	\$15.21	\$18.13	\$33.33
Laredo	0	0	1	-46.09	\$55.67	\$13.28	\$68.95
Longview	0	0	1	30.05	\$64.57	\$22.80	\$87.37
Lubbock	0	0	1	18.46	\$10.34	\$18.51	\$28.85
Lufkin	0	0	1		\$0.00	\$47.59	\$47.59
McAllen	0	0	1	-10.07	\$0.00	\$34.30	\$34.30
Mesquite	0	0	1	61.68	\$23.21	\$22.35	\$45.56
Midland	0	0	1	57.42	\$8.48	\$31.75	\$40.23
Mission	0	0	1				
Nacogdoches	0	0	1		\$11.12	\$24.75	\$35.87
North Richland Hills	0	0	1	75.05	\$23.34	\$15.68	\$39.02
Odessa	0	0	1	21.04	\$0.00	\$30.42	\$30.42
Paris	0	0	1		\$9.54	\$43.90	\$53.44
Pasadena	0	0	1	45.28	\$0.81	\$27.17	\$27.97
Plano	0	0	1	111.59	\$66.09	\$9.62	\$75.71
Port Arthur	0	0	1	1.08	\$0.00	\$29.75	\$29.75
Richardson	0	0	1	115.44	\$30.84	\$25.09	\$55.93
San Angelo	0	0	1	19.44	\$2.55	\$21.95	\$24.50
San Antonio	0	0	1	10.21	\$25.22	\$5.91	\$31.13
Sherman	0	0	1	38.20	\$0.00	\$30.81	\$30.81
Temple	0	0	1	40.07	\$1.92	\$33.14	\$35.07
Texarkana	0	0	1	24.15	\$88.28	\$22.16	\$110.44
Texas City	0	0	1	37.30	\$8.51	\$47.54	\$56.05
Tyler	0	0	1	30.81	\$13.00	\$8.29	\$21.29
Victoria	0	0	1	19.87	\$52.14	\$29.25	\$81.39
Waco	0	0	1	0.88	\$43.56	\$14.99	\$58.55
Wichita Falls	0	0	1	21.14	\$0.00	\$26.13	\$26.13

NOTE: All Dollar amounts are in 1982 Dollars

**TABLE C-4: ROAD AND STREET EXPENDITURES PER ROAD KILOMETER AND BRIDGE CONDITION MEASURES, MSA CITIES, 1982 (DATA USED FOR ANALYSIS RESULTS IN TABLE 4-2)**

CITY	Dummy 82	Dummy 87	Dummy 92	Construction Exp. Per Road KM (CONEXPKM)	Maintenance Exp. Per Road KM (MNTEXPKM)	Total Exp. Per Road KM (TOTEXPKM)	Average Sufficiency Rating (AVG_SR)	Percent Deficient (PCT_DEF)	Percent Obsolete (PCT_OBS)	Percent GOOD (PCT_GOOD)
Abilene	1	0	0	\$3,598.97	\$3,116.20	\$6,715.17	71.96	9.5%	18.0%	71.4%
Amarillo	1	0	0				57.80			
Arlington	1	0	0	\$10,235.19	\$3,173.05	\$13,408.24	73.86	8.5%	16.1%	77.4%
Austin	1	0	0	\$9,287.48	\$1,632.95	\$10,920.43	84.42	0.0%	12.6%	87.4%
Baytown	1	0	0				70.91	0.0%	47.4%	52.6%
Beaumont	1	0	0	\$8,433.03	\$2,132.16	\$10,565.19	87.55	32.4%	23.5%	44.1%
Brownsville	1	0	0	\$1,496.27	\$2,077.91	\$3,574.18	51.72	77.8%	11.1%	11.1%
Bryan	1	0	0	\$4,585.81	\$3,369.73	\$7,955.54	89.28	9.1%	0.0%	90.9%
Carrollton	1	0	0				85.49	0.0%	18.8%	81.3%
College Station	1	0	0	\$7,456.49	\$2,784.69	\$10,241.17	88.80	0.0%	0.0%	100.0%
Corpus Christi	1	0	0	\$2,404.35	\$2,586.41	\$4,990.76	72.49	18.2%	24.2%	57.6%
Dallas	1	0	0				82.28	14.1%	23.8%	62.1%
Del Rio	1	0	0				64.27			
Denton	1	0	0	\$3,896.12	\$1,856.28	\$5,752.40	73.97	23.1%	26.9%	50.0%
Duncanville	1	0	0	\$325.09	\$2,975.49	\$3,300.57	90.83	0.0%	25.0%	75.0%
Edinburg	1	0	0							
El Paso	1	0	0				81.97	11.2%	10.2%	78.6%
Fort Worth	1	0	0	\$3,227.79	\$849.93	\$4,077.71	70.94	8.9%	32.2%	58.9%
Galveston	1	0	0	\$1,757.05	\$2,645.10	\$4,402.15	75.60	16.7%	0.0%	83.3%
Garland	1	0	0	\$3,876.02	\$2,422.50	\$6,298.52	79.58	7.7%	34.6%	57.7%
Grand Prairie	1	0	0				83.18	10.0%	23.3%	66.7%
Haltom City	1	0	0				81.76	0.0%	0.0%	100.0%
Hartlingen	1	0	0				52.10			
Houston	1	0	0				86.90	2.4%	23.0%	74.6%
Hurst	1	0	0	\$1,288.61	\$4,019.44	\$5,308.04	76.18	8.3%	12.5%	81.3%
Irving	1	0	0				80.90	11.5%	13.1%	75.4%
Killeen	1	0	0				74.49	0.0%	45.5%	54.5%
Laredo	1	0	0				72.15	18.2%	18.2%	63.6%
Longview	1	0	0				73.73	36.4%	9.1%	54.5%
Lubbock	1	0	0	\$5,782.38	\$1,937.73	\$7,720.10	76.53	0.0%	50.0%	50.0%
Lufkin	1	0	0				63.54	40.0%	30.0%	30.0%
McAllen	1	0	0				80.63	0.0%	33.3%	66.7%
Mesquite	1	0	0				78.88	9.5%	42.9%	47.6%
Midland	1	0	0	\$1,117.09	\$3,600.42	\$4,717.52	90.44	0.0%	0.0%	100.0%
Mission	1	0	0							
Nacogdoches	1	0	0				72.62	30.0%	10.0%	60.0%
North Richland Hills	1	0	0	\$13,743.24	\$2,352.00	\$16,095.24	79.31	0.0%	10.0%	90.0%
Odessa	1	0	0	\$3,051.80	\$4,739.61	\$7,791.40				
Paris	1	0	0				80.46	12.5%	25.0%	62.5%
Pasadena	1	0	0				54.37	58.1%	19.4%	22.6%
Plano	1	0	0	\$10,408.76	\$1,549.34	\$11,958.10	86.40	6.3%	3.1%	90.6%
Port Arthur	1	0	0	\$4,261.43	\$3,433.95	\$7,695.38	88.73	22.2%	44.4%	33.3%
Richardson	1	0	0	\$1,409.18	\$3,411.00	\$4,820.18	80.92	3.1%	37.5%	59.4%
San Angelo	1	0	0				71.15	12.5%	50.0%	37.5%
San Antonio	1	0	0				78.83	9.6%	31.1%	59.4%
Sherman	1	0	0				78.80	33.3%	0.0%	66.7%
Temple	1	0	0				64.22			
Texarkana	1	0	0				80.14	14.3%	28.6%	57.1%
Texas City	1	0	0				65.84	42.9%	0.0%	57.1%
Tyler	1	0	0				79.36	18.5%	55.6%	25.9%
Victoria	1	0	0				76.64	20.0%	0.0%	80.0%
Waco	1	0	0	\$1,701.55	\$2,310.73	\$4,012.28	77.32	15.2%	27.3%	57.6%
Wichita Falls	1	0	0	\$2,706.17	\$2,267.78	\$4,973.95	83.42	15.4%	7.7%	76.9%

NOTE: All Dollar amounts are in 1982 Dollars

**TABLE C-5: ROAD AND STREET EXPENDITURES PER ROAD KILOMETER AND BRIDGE CONDITION MEASURES, MSA CITIES, 1987 (DATA USED FOR ANALYSIS RESULTS IN TABLE 4-2)**

CITY	Dummy 82	Dummy 87	Dummy 92	Construction Exp. Per Road KM (CONEXPKM)	Maintenance Exp. Per Road KM (MNTEXPKM)	Total Exp. Per Road KM (TOTEXPKM)	Average Sufficiency Rating (AVG_SR)	Percent Deficient (PCT_DEF)	Percent Obsolete (PCT_OBS)	Percent GOOD (PCT_GOOD)
Ablene	0	1	0	\$602.39	\$2,849.01	\$3,451.40	70.55	50.0%	6.3%	43.8%
Amarillo	0	1	0				47.12			
Arlington	0	1	0	\$13,480.75	\$2,664.21	\$16,144.96	76.44	0.0%	38.6%	60.4%
Austin	0	1	0	\$13,524.32	\$2,165.43	\$15,689.76	78.85	1.4%	37.8%	60.8%
Baytown	0	1	0				72.20			
Beaumont	0	1	0	\$3,118.93	\$2,734.58	\$5,853.52	75.56	20.0%	13.3%	66.7%
Brownsville	0	1	0	\$4,670.66	\$1,899.49	\$6,370.15	50.18	10.0%	80.0%	10.0%
Bryan	0	1	0	\$4,198.09	\$2,123.93	\$6,322.03	90.05	0.0%	0.0%	100.0%
Carrollton	0	1	0				74.90	25.0%	0.0%	75.0%
College Station	0	1	0	\$6,045.98	\$2,330.69	\$8,376.68	86.25	0.0%	0.0%	100.0%
Corpus Christi	0	1	0	\$2,881.28	\$2,848.71	\$5,529.99	69.80	0.0%	50.0%	50.0%
Dallas	0	1	0				81.30	5.7%	29.4%	64.9%
Del Rio	0	1	0				56.85	25.0%	50.0%	25.0%
Denton	0	1	0	\$3,679.44	\$1,336.18	\$5,015.62	76.80	8.7%	17.4%	73.9%
Duncanville	0	1	0	\$5,823.46	\$2,728.26	\$8,549.72	84.31	0.0%	42.9%	57.1%
Edinburg	0	1	0							
El Paso	0	1	0				84.15	5.0%	25.0%	70.0%
Fort Worth	0	1	0	\$2,565.65	\$698.00	\$3,263.65	75.14	1.9%	33.6%	64.5%
Galveston	0	1	0	\$902.86	\$2,273.54	\$3,176.41	70.03	0.0%	0.0%	100.0%
Garland	0	1	0	\$6,077.32	\$2,513.68	\$8,590.99	72.35	11.1%	33.3%	55.6%
Grand Prairie	0	1	0				77.35	10.0%	35.0%	55.0%
Haltom City	0	1	0				82.02	0.0%	25.0%	75.0%
Harlingen	0	1	0				48.30			
Houston	0	1	0				70.53	14.0%	49.0%	37.0%
Hurst	0	1	0				79.53	0.0%	6.3%	93.8%
Irving	0	1	0				85.96	3.5%	12.3%	84.2%
Killeen	0	1	0				66.95			
Laredo	0	1	0	\$7,131.14	\$1,708.03	\$8,839.17	85.31	0.0%	0.0%	100.0%
Longview	0	1	0				86.41	5.6%	8.3%	86.1%
Lubbock	0	1	0	\$1,685.18	\$1,767.54	\$3,452.72				
Lufkin	0	1	0	\$149.43	\$2,138.07	\$2,287.50	69.12	29.4%	23.5%	47.1%
McAllen	0	1	0				90.38	0.0%	0.0%	100.0%
Mesquite	0	1	0				64.80	33.3%	41.7%	25.0%
Midland	0	1	0	\$1,825.13	\$3,323.53	\$5,148.67	90.73	0.0%	0.0%	100.0%
Mission	0	1	0							
Nacogdoches	0	1	0				78.60	25.0%	16.7%	58.3%
North Richland Hills	0	1	0	\$5,036.82	\$2,666.75	\$7,703.57	79.74	0.0%	37.5%	62.5%
Odessa	0	1	0	\$2,027.21	\$3,061.11	\$5,108.32	91.26	0.0%	6.3%	93.8%
Paris	0	1	0				90.51	0.0%	0.0%	100.0%
Pasadena	0	1	0				74.14	17.6%	17.6%	64.7%
Plano	0	1	0	\$13,883.67	\$1,834.46	\$15,718.13	91.55	0.0%	4.3%	95.7%
Port Arthur	0	1	0	\$3,580.98	\$2,883.50	\$6,464.48	66.51	16.7%	33.3%	50.0%
Richardson	0	1	0	\$10,457.04	\$3,284.48	\$13,741.52	60.00	0.0%	37.0%	63.0%
San Angelo	0	1	0				78.13	10.0%	20.0%	70.0%
San Antonio	0	1	0				78.40	2.2%	21.0%	76.9%
Sherman	0	1	0				65.72	18.2%	0.0%	81.8%
Temple	0	1	0				76.68	0.0%	66.7%	33.3%
Texarkana	0	1	0				89.19	0.0%	0.0%	100.0%
Texas City	0	1	0				79.75	0.0%	33.3%	66.7%
Tyler	0	1	0				98.70	0.0%	0.0%	100.0%
Victoria	0	1	0				87.25	0.0%	10.0%	90.0%
Waco	0	1	0	\$1,881.42	\$2,182.64	\$4,064.05	79.29	0.0%	70.6%	29.4%
Wichita Falls	0	1	0	\$1,428.17	\$2,530.25	\$3,958.42	86.30	4.8%	14.3%	81.0%

NOTE: All Dollar amounts are in 1982 Dollars



**TABLE C-6: ROAD AND STREET EXPENDITURES PER ROAD KILOMETER AND BRIDGE CONDITION MEASURES, MSA CITIES, 1992 (DATA USED FOR ANALYSIS RESULTS IN TABLE 4-2)**

CITY	Dummy 82	Dummy 87	Dummy 92	Construction Exp. Per Road KM (CONEXPKM)	Maintenance Exp. Per Road KM (MNTEPKM)	Total Exp. Per Road KM (TOTEXPKM)	Average Sufficiency Rating (AVG_SR)	Percent Deficient (PCT_DEF)	Percent Obsolete (PCT_OBS)	Percent GOOD (PCT_GOOD)
Abilene	0	0	1	\$320.72	\$3,391.47	\$3,712.19	76.64	8.3%	8.3%	83.3%
Amarillo	0	0	1				90.78	0.0%	0.0%	100.0%
Arlington	0	0	1	\$5,688.60	\$3,176.76	\$8,865.36	76.55	2.9%	39.7%	57.4%
Austin	0	0	1	\$3,951.14	\$2,381.07	\$6,332.21	83.34	3.2%	29.4%	67.5%
Baytown	0	0	1							
Beaumont	0	0	1	\$305.24	\$3,496.22	\$3,801.45	79.67	13.3%	6.7%	80.0%
Brownsville	0	0	1	\$3,372.32	\$2,032.64	\$5,404.96	84.66	0.0%	20.0%	80.0%
Bryan	0	0	1	\$340.52	\$2,803.58	\$3,144.10	90.02	0.0%	9.1%	90.9%
Carrollton	0	0	1				84.31	10.5%	15.8%	73.7%
College Station	0	0	1	\$0.00	\$3,309.10	\$3,309.10	89.65	0.0%	0.0%	100.0%
Corpus Christi	0	0	1	\$1,462.58	\$1,667.80	\$3,130.38	74.03	10.0%	26.7%	63.3%
Dallas	0	0	1				83.15	3.4%	28.9%	67.7%
Del Rio	0	0	1				67.10	0.0%	66.7%	33.3%
Denton	0	0	1	\$334.30	\$3,029.06	\$3,363.36	82.89	3.2%	12.9%	83.9%
Duncanville	0	0	1	\$9,042.95	\$2,775.32	\$11,818.28	89.76	0.0%	0.0%	100.0%
Edinburg	0	0	1							
El Paso	0	0	1				88.24	0.0%	13.2%	86.8%
Fort Worth	0	0	1	\$1,586.94	\$835.42	\$2,422.36	77.50	6.9%	39.6%	53.5%
Galveston	0	0	1	\$0.00	\$931.51	\$931.51	56.35	0.0%	100.0%	0.0%
Garland	0	0	1	\$3,130.13	\$2,340.60	\$5,470.73	77.17	7.1%	25.0%	67.9%
Grand Prairie	0	0	1				83.41	4.3%	26.1%	69.6%
Haltom City	0	0	1				80.12	0.0%	25.0%	75.0%
Harlingen	0	0	1				59.50	0.0%	100.0%	0.0%
Houston	0	0	1				73.75	6.6%	64.5%	28.9%
Hurst	0	0	1	\$989.44	\$3,978.54	\$4,967.98	77.88	0.0%	18.2%	81.8%
Irving	0	0	1				85.60	1.6%	21.0%	77.4%
Killeen	0	0	1				79.64	0.0%	90.0%	10.0%
Laredo	0	0	1	\$13,230.29	\$3,155.29	\$16,385.58	82.70	0.0%	33.3%	66.7%
Longview	0	0	1				88.93	5.4%	2.7%	91.9%
Lubbock	0	0	1	\$1,468.21	\$2,627.03	\$4,095.23	83.77	0.0%	0.0%	100.0%
Lufkin	0	0	1	\$0.00	\$4,024.47	\$4,024.47	64.47	40.0%	26.7%	33.3%
McAllen	0	0	1				78.07	11.1%	22.2%	66.7%
Mesquite	0	0	1				75.61	9.7%	41.9%	48.4%
Midland	0	0	1	\$993.41	\$3,718.54	\$4,711.94	91.68	0.0%	0.0%	100.0%
Mission	0	0	1							
Nacogdoches	0	0	1				71.54	36.4%	0.0%	63.6%
North Richland Hills	0	0	1	\$3,865.42	\$2,596.25	\$6,461.67	82.11	0.0%	27.3%	72.7%
Odessa	0	0	1	\$0.00	\$4,883.65	\$4,883.65	93.38	0.0%	0.0%	100.0%
Paris	0	0	1				92.76	0.0%	11.1%	88.9%
Pasadena	0	0	1				75.64	16.7%	23.3%	60.0%
Plano	0	0	1	\$8,004.44	\$1,164.65	\$9,169.08	90.74	0.0%	12.8%	87.2%
Port Arthur	0	0	1	\$0.00	\$3,395.64	\$3,395.64	79.24	0.0%	42.9%	57.1%
Richardson	0	0	1	\$4,459.60	\$3,627.42	\$8,087.01	79.44	0.0%	42.4%	57.6%
San Angelo	0	0	1				78.83	16.7%	8.3%	75.0%
San Antonio	0	0	1				81.77	2.5%	30.2%	67.3%
Sherman	0	0	1				86.85	9.1%	27.3%	63.6%
Temple	0	0	1				74.37	10.0%	70.0%	20.0%
Texarkana	0	0	1				84.98	0.0%	20.0%	80.0%
Texas City	0	0	1				79.21	0.0%	0.0%	100.0%
Tyler	0	0	1				98.20	0.0%	0.0%	100.0%
Victoria	0	0	1				83.45	0.0%	20.0%	80.0%
Waco	0	0	1	\$5,552.66	\$1,911.50	\$7,464.15	79.97	2.7%	70.3%	27.0%
Wichita Falls	0	0	1	\$0.00	\$2,662.54	\$2,662.54	90.08	7.7%	15.4%	76.9%

NOTE: All Dollar amounts are in 1982 Dollars

**APPENDIX D:**  
**TABLES ON**  
**ESTIMATES OF NON-LOCAL REVENUE**  
**REQUIRED TO MAINTAIN LOCAL STREETS**  
**AND ROADS**



**TABLE D-1: ESTIMATES OF SHORTFALLS OR EXCESSES IN  
MSA CITIES' ROAD AND STREET EXPENDITURE, 1972**

CITY	1972 ACTUAL (\$) EXPENDITURES	1972 VEHICLE REGISTRATIONS	1972 REQUIRED (\$) EXPENDITURES	1972 OVERSPENT/ (UNDERSPENT) (\$)
Abilene	2,063,142	68776	2,959,217	(896,075)
Amarillo	2,307,789	108597	4,672,541	(2,364,751)
Arlington	8,204,781	69556	2,992,759	5,212,022
Austin	10,776,895	186208	8,011,884	2,765,011
Baytown	1,843,135	32873	1,414,419	428,717
Beaumont	5,339,617	84137	3,620,150	1,719,467
Brownsville	2,027,148	29863	1,284,895	742,254
Bryan	1,439,757	22355	961,879	477,878
Carrollton	635,075	11315	486,866	148,209
College Station	583,002	11719	504,231	78,771
Corpus Christi	3,873,914	142308	6,123,009	(2,249,095)
Dallas	44,916,157	653272	28,108,053	16,808,104
Del Rio	412,017	14557	626,337	(214,320)
Denton	1,419,852	32565	1,401,177	18,674
Duncanville	534,209	10912	469,521	64,687
Edinburg	NA	NA	NA	NA
El Paso	6,022,566	190391	8,191,869	(2,169,303)
Fort Worth	22,927,714	303988	13,079,559	9,848,155
Galveston	769,383	40574	1,745,782	(976,399)
Garland	2,669,495	63004	2,710,839	(41,345)
Grand Prairie	3,047,383	39382	1,694,470	1,352,913
Haltom City	401,022	21730	934,971	(533,950)
Harlingen	838,559	19049	819,615	18,944
Houston	32,930,886	921466	39,647,530	(6,716,644)
Hurst	794,161	21025	904,655	(110,494)
Irving	3,063,508	75245	3,237,549	(174,041)
Killeen	517,809	23920	1,029,192	(511,384)
Laredo	4,258,708	36299	1,561,831	2,696,876
Longview	846,118	41807	1,798,833	(952,714)
Lubbock	2,680,486	116431	5,009,627	(2,329,141)
Lufkin	1,102,022	18656	802,697	299,325
McAllen	1,661,308	21494	924,831	736,476
Mesquite	2,517,716	42652	1,835,177	682,539
Midland	770,480	50199	2,159,896	(1,389,416)
Mission	NA	NA	NA	NA
Nacogdoches	504,202	14846	638,761	(134,559)
North Richland Hills	1,525,200	12758	548,943	976,257
Odessa	1,750,181	68946	2,966,507	(1,216,326)
Paris	579,187	18948	815,271	(236,084)
Pasadena	3,075,832	66731	2,871,193	204,639
Plano	533,015	14359	617,820	(84,805)
Port Arthur	1,766,867	41065	1,766,867	0
Richardson	3,725,942	37586	1,617,176	2,108,765
San Angelo	1,166,652	50725	2,182,503	(1,015,852)
San Antonio	10,303,256	412643	17,754,614	(7,451,358)
Sherman	560,325	22312	959,992	(399,667)
Temple	853,312	22452	966,024	(112,712)
Texarkana	1,892,875	24908	1,071,700	821,175
Texas City	2,984,983	25541	1,098,948	1,886,035
Tyler	1,045,933	45279	1,948,203	(902,269)
Victoria	1,014,772	31203	1,342,553	(327,781)
Waco	3,496,778	71588	3,080,203	416,576
Wichita Falls	2,113,144	75237	3,237,179	(1,124,035)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-2: ESTIMATES OF SHORTFALLS OR EXCESSES IN  
MSA CITIES' ROAD AND STREET EXPENDITURE, 1982**

CITY	1982 ACTUAL (\$) EXPENDITURES	1982 VEHICLE REGISTRATIONS	1982 REQUIRED (\$) EXPENDITURES	1982 OVERSPENT/ (UNDERSPENT) (\$)
Abilene	4,926,946	99774	7,245,410	(2,318,464)
Amarillo	10,777,633	148415	10,777,633	0
Arlington	14,583,925	160062	11,623,458	2,960,467
Austin	19,574,056	303440	22,035,327	(2,461,271)
Baytown	3,802,809	51280	3,723,889	78,920
Beaumont	10,607,620	101344	7,359,459	3,248,161
Brownsville	1,638,993	52613	3,820,680	(2,181,687)
Bryan	3,072,112	35972	2,612,232	459,880
Carrollton	4,487,868	37104	2,694,416	1,793,452
College Station	2,471,707	30240	2,195,979	275,728
Corpus Christi	8,174,673	188489	13,687,770	(5,513,097)
Dallas	43,541,666	839868	60,989,844	(17,448,178)
Del Rio	NA	NA	NA	NA
Denton	1,897,400	43930	3,190,091	(1,292,691)
Duncanville	743,487	25808	1,874,129	(1,130,642)
Edinburg	NA	NA	NA	NA
El Paso	8,762,222	296504	21,531,640	(12,769,418)
Fort Worth	30,548,210	385042	27,961,113	2,587,097
Galveston	2,408,239	50032	3,633,252	(1,225,013)
Garland	5,675,324	128995	9,367,407	(3,692,083)
Grand Prairie	2,011,095	66387	4,820,885	(2,809,790)
Haltom City	794,456	29005	2,106,281	(1,311,825)
Harlingen	1,819,838	26953	1,957,291	(137,453)
Houston	79,962,069	1437013	104,353,538	(24,391,469)
Hurst	994,131	31410	2,280,946	(1,286,815)
Irving	4,220,251	102135	7,416,845	(3,196,594)
Killeen	992,463	34571	2,510,460	(1,517,997)
Laredo	NA	57637	NA	NA
Longview	2,855,798	77089	5,598,059	(2,742,261)
Lubbock	10,011,849	145444	10,561,891	(550,042)
Lufkin	NA	25999	NA	NA
McAllen	2,801,057	42757	3,104,922	(303,865)
Mesquite	3,380,032	62291	4,523,450	(1,143,418)
Midland	3,605,480	88656	6,438,081	(2,832,601)
Mission	NA	NA	NA	NA
Nacogdoches	NA	NA	NA	NA
North Richland Hills	4,221,250	30582	2,220,837	2,000,413
Odessa	4,600,346	107607	7,814,266	(3,213,920)
Paris	NA	NA	NA	NA
Pasadena	4,123,261	101402	7,363,648	(3,240,387)
Plano	7,853,428	65424	4,750,977	3,102,451
Port Arthur	3,726,944	52792	3,833,646	(106,702)
Richardson	2,329,880	67347	4,890,640	(2,560,760)
San Angelo	2,898,875	72317	5,251,510	(2,352,635)
San Antonio	20,457,466	619268	44,970,203	(24,512,737)
Sherman	NA	NA	NA	NA
Temple	3,952,083	35582	2,583,901	1,368,182
Texarkana	NA	NA	NA	NA
Texas City	1,741,618	33464	2,430,092	(688,474)
Tyler	2,303,012	66661	4,840,805	(2,537,793)
Victoria	6,485,247	49666	3,606,645	2,878,602
Waco	3,150,409	87983	6,389,204	(3,238,795)
Wichita Falls	4,585,767	92935	6,748,803	(2,163,036)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-3: ESTIMATES OF SHORTFALLS OR EXCESSES IN  
MSA CITIES' ROAD AND STREET EXPENDITURE, 1992**

CITY	1992 ACTUAL (\$) EXPENDITURES	1992 VEHICLE REGISTRATIONS	1992 REQUIRED (\$) EXPENDITURES	1992 OVERSPENT/ (UNDERSPENT) (\$)
Abilene	2,944,648	103051	5,348,292	(2,403,644)
Amarillo	5,001,110	158997	8,251,916	(3,250,806)
Arlington	12,852,198	250093	12,979,747	(127,550)
Austin	16,291,464	411434	21,353,282	(5,061,817)
Baytown	1,398,760	NA	NA	NA
Beaumont	3,975,749	102711	5,330,692	(1,354,943)
Brownsville	3,043,802	65689	3,409,214	(365,411)
Bryan	1,365,889	41841	2,171,521	(805,632)
Carrollton	10,309,627	76065	3,947,772	6,361,855
College Station	995,652	41202	2,138,379	(1,142,727)
Corpus Christi	6,240,573	211481	10,975,820	(4,735,247)
Dallas	53,422,332	872577	45,286,492	8,135,840
Del Rio	1,407,633	25009	1,297,952	109,680
Denton	1,352,912	58035	3,011,981	(1,659,069)
Duncanville	2,985,450	31547	1,637,272	1,348,178
Edinburg	NA	NA	NA	NA
El Paso	5,436,983	351831	18,259,923	(12,822,940)
Fort Worth	21,378,169	411913	21,378,169	0
Galveston	517,085	50250	2,607,966	(2,090,881)
Garland	5,621,306	163154	8,467,647	(2,846,341)
Grand Prairie	4,580,595	89163	4,627,518	(46,923)
Haltom City	484,597	31564	1,638,163	(1,153,566)
Harlingen	2,227,847	32275	1,675,062	552,785
Houston	77,556,470	1310956	68,038,188	9,518,282
Huret	1,019,169	31197	1,619,111	(599,942)
Irving	4,448,570	137617	7,142,266	(2,693,696)
Killeen	2,219,086	54628	2,835,164	(616,078)
Laredo	9,412,091	86071	4,467,052	4,945,040
Longview	6,351,042	80922	4,199,851	2,151,191
Lubbock	5,422,936	165399	8,584,138	(3,161,202)
Lufkin	1,489,337	30828	1,599,978	(110,641)
McAllen	3,095,379	55337	2,871,952	223,426
Mesquite	4,935,092	92441	4,797,681	137,411
Midland	3,828,665	92164	4,783,303	(954,638)
Mission	NA	NA	NA	NA
Nacogdoches	1,100,568	25030	1,299,054	(198,486)
North Richland Hills	1,965,000	45646	2,369,038	(404,037)
Odessa	2,852,380	89260	4,632,590	(1,780,210)
Paris	1,319,807	26613	1,381,226	(61,419)
Pasadena	3,508,534	97278	5,048,701	(1,540,167)
Plano	10,758,959	129949	6,744,308	4,014,651
Port Arthur	1,775,663	53072	2,754,426	(978,763)
Richardson	4,271,321	65167	3,382,169	889,152
San Angelo	2,109,628	81882	4,249,662	(2,140,033)
San Antonio	30,084,166	756356	39,254,658	(9,170,492)
Sherman	959,670	32382	1,680,605	(720,935)
Temple	1,581,637	39863	2,068,887	(487,251)
Texarkana	3,547,658	32587	1,691,272	1,856,386
Texas City	2,338,261	35187	1,826,172	512,089
Tyler	1,636,627	75554	3,921,211	(2,284,584)
Victoria	4,670,939	55357	2,872,994	1,797,944
Waco	6,088,980	95198	4,940,762	1,148,218
Wichita Falls	2,482,592	93712	4,863,610	(2,381,018)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-4: FORECASTS OF SHORTFALLS OR EXCESSES IN  
MSA CITIES' ROAD AND STREET EXPENDITURE, 1995**

CITY	1995 ACTUAL (\$) EXPENDITURES	1995 VEHICLE REGISTRATIONS	1995 REQUIRED (\$) EXPENDITURES	1995 OVERSPENT/ (UNDERSPENT) (\$)
Abilene	3,560,386	111322	6,474,872	(2,914,486)
Amarillo	7,803,265	170502	9,916,986	(2,113,721)
Arlington	19,347,214	287829	16,741,129	2,606,085
Austin	29,784,677	458516	26,668,875	3,115,802
Baytown	1,751,686	59059	3,435,058	(1,683,372)
Beaumont	5,541,023	105859	6,157,125	(616,102)
Brownsville	3,167,504	70618	4,107,364	(939,860)
Bryan	2,251,992	47161	2,743,070	(491,078)
Carrollton	11,436,296	83856	4,877,372	6,558,924
College Station	1,874,948	44540	2,590,618	(715,670)
Corpus Christi	8,655,014	223915	13,023,670	(4,368,656)
Dallas	47,479,954	938914	54,610,483	(7,130,529)
Del Rio	1,253,544	27573	1,603,735	(350,191)
Denton	1,692,358	61513	3,577,814	(1,885,456)
Duncanville	3,040,146	37016	2,152,996	887,150
Edinburg	NA	NA	NA	NA
El Paso	7,183,453	378668	22,024,640	(14,841,187)
Fort Worth	25,314,830	435236	25,314,830	0
Galveston	1,352,760	51204	2,978,219	(1,625,459)
Garland	8,027,862	186743	10,861,618	(2,833,756)
Grand Prairie	5,485,996	99630	5,794,825	(308,829)
Haltom City	614,349	33830	1,967,693	(1,353,344)
Harlingen	2,106,681	34514	2,007,424	99,257
Houston	95,878,890	1456561	84,718,622	11,160,268
Hurst	1,082,075	35087	2,040,752	(958,677)
Irving	6,687,975	140569	8,175,979	(1,488,004)
Killeen	2,425,587	57509	3,344,893	(919,306)
Laredo	8,259,628	107539	6,254,840	2,004,788
Longview	5,859,966	93013	5,409,940	450,026
Lubbock	6,883,941	171460	9,972,706	(3,088,765)
Lufkin	1,265,575	32883	1,912,566	(646,991)
McAllen	2,971,566	60700	3,530,504	(558,938)
Mesquite	5,776,263	97027	5,643,426	132,837
Midland	4,884,965	103408	6,014,567	(1,129,602)
Mission	NA	NA	NA	NA
Nacogdoches	864,598	26480	1,540,157	(675,559)
North Richland Hills	2,631,134	52181	3,035,045	(403,911)
Odessa	3,693,466	97018	5,642,902	(1,949,436)
Paris	1,625,548	27453	1,596,738	28,810
Pasadena	4,163,009	104217	6,061,621	(1,898,612)
Plano	16,268,934	149131	8,673,974	7,594,960
Port Arthur	2,868,975	55972	3,255,502	(386,527)
Richardson	5,353,142	75968	4,418,579	934,563
San Angelo	2,438,602	88752	5,162,146	(2,723,544)
San Antonio	44,480,807	815506	47,432,647	(2,951,840)
Sherman	1,161,257	33600	1,954,304	(793,047)
Temple	3,347,832	45259	2,632,391	715,441
Texarkana	2,804,482	33390	1,942,049	862,433
Texas City	1,537,409	36545	2,125,566	(588,157)
Tyler	2,363,499	81028	4,712,874	(2,349,375)
Victoria	5,879,362	59992	3,489,325	2,390,037
Waco	5,079,080	98585	5,734,044	(654,964)
Wichita Falls	3,535,456	97530	5,672,682	(2,137,226)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-5: FORECASTS OF SHORTFALLS OR EXCESSES IN  
MSA CITIES' ROAD AND STREET EXPENDITURE, 2000**

CITY	2000 ACTUAL (\$) EXPENDITURES	2000 VEHICLE REGISTRATIONS	2000 REQUIRED (\$) EXPENDITURES	2000 OVERSPENT/ (UNDERSPENT) (\$)
Abilene	3,781,035	119284	6,715,151	(2,934,116)
Amarillo	8,339,555	182134	10,253,322	(1,913,767)
Arlington	22,032,102	336078	18,919,675	3,112,427
Austin	33,711,724	518071	29,165,059	4,546,665
Baytown	1,582,167	64021	3,604,099	(2,021,932)
Beaumont	5,019,556	109517	6,165,313	(1,145,757)
Brownsville	3,482,345	78889	4,441,106	(958,761)
Bryan	2,298,225	52412	2,950,582	(652,357)
Carrollton	13,855,626	100184	5,639,907	8,215,719
College Station	2,026,833	51497	2,899,049	(872,216)
Corpus Christi	9,468,108	240726	13,551,787	(4,083,679)
Dallas	49,554,387	996052	56,073,232	(6,518,845)
Del Rio	1,456,474	30313	1,706,508	(250,034)
Denton	1,709,638	67696	3,810,968	(2,101,330)
Duncanville	3,657,853	42170	2,373,964	1,283,889
Edinburg	NA	NA	NA	NA
El Paso	7,010,869	416816	23,464,859	(16,453,990)
Fort Worth	25,989,318	461659	25,989,318	0
Galveston	1,368,497	52955	2,981,127	(1,612,630)
Garland	8,974,060	212054	11,937,683	(2,963,623)
Grand Prairie	6,278,748	112776	6,348,780	(70,032)
Haltom City	635,243	36208	2,038,369	(1,403,126)
Harlingen	2,373,287	37661	2,120,116	253,171
Houston	108,550,000	1540572	86,727,250	21,822,750
Hurst	1,138,327	37626	2,118,185	(979,858)
Irving	7,519,491	154888	8,719,495	(1,200,004)
Killeen	2,865,458	64654	3,639,734	(774,276)
Laredo	9,223,094	123494	6,952,155	2,270,939
Longview	7,033,180	102856	5,790,329	1,242,851
Lubbock	7,468,296	182252	10,259,965	(2,791,669)
Lufkin	1,319,698	35609	2,004,620	(684,922)
McAllen	3,238,978	68947	3,881,416	(642,438)
Mesquite	6,647,092	109109	6,142,344	504,748
Midland	5,535,687	113577	6,393,872	(858,185)
Mission	NA	NA	NA	NA
Nacogdoches	964,382	28693	1,615,275	(650,893)
North Richland Hills	2,698,321	60950	3,431,199	(732,878)
Odessa	3,884,753	100151	5,638,049	(1,753,296)
Paris	1,840,195	29259	1,647,121	193,074
Pasadena	4,250,445	110301	6,209,448	(1,959,003)
Plano	19,440,661	179442	10,101,775	9,338,886
Port Arthur	3,016,500	58819	3,311,261	(294,761)
Richardson	5,784,980	82939	4,669,069	1,115,911
San Angelo	2,605,842	96308	5,421,706	(2,815,864)
San Antonio	51,987,318	896804	50,486,017	1,501,301
Sherman	1,282,560	36043	2,029,047	(746,487)
Temple	3,671,447	49929	2,810,777	860,670
Texarkana	3,067,966	34700	1,953,465	1,114,501
Texas City	1,300,315	38443	2,164,139	(863,824)
Tyler	2,292,545	88222	4,966,506	(2,673,961)
Victoria	6,688,189	65592	3,692,517	2,995,672
Waco	5,395,363	103468	5,824,781	(429,418)
Wichita Falls	3,671,105	101290	5,702,170	(2,031,065)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]



**TABLE D-6: ESTIMATES OF SHORTFALLS OR EXCESSES IN MSA COUNTIES' ROAD AND STREET EXPENDITURE, 1972**

COUNTY	1972 ACTUAL (\$) EXPENDITURES	1972 VEHICLE REGISTRATIONS	1972 REQUIRED (\$) EXPENDITURES	1972 OVERSPENT/ (UNDERSPENT) (\$)
Angelina	899,626	39943	793,106	106,520
Bell	1,659,976	83601	1,659,976	0
Bexar	2,816,370	523858	10,401,692	(7,585,323)
Bowie	777,858	NA	NA	NA
Brazos	570,735	38439	763,242	(192,507)
Cameron	1,596,473	79810	1,584,702	11,771
Collin	1,320,688	53766	1,067,574	253,114
Coryell	490,219	24047	477,476	12,744
Dallas	8,958,140	1026883	20,389,726	(11,431,586)
Denton	997,422	61770	1,226,501	(229,080)
Ector	1,111,471	80755	1,603,466	(491,995)
El Paso	1,146,684	212268	4,214,780	(3,068,097)
Galveston	1,961,957	111473	2,213,401	(251,444)
Grayson	1,568,441	63896	1,268,715	299,726
Gregg	3,114,927	69695	1,383,860	1,731,067
Harris	18,789,660	1302003	25,852,492	(7,062,832)
Hidalgo	NA	103677	NA	NA
Jefferson	3,103,641	175233	3,479,416	(375,775)
Lamar	750,127	29150	578,801	171,326
Lubbock	1,383,772	140009	2,780,010	(1,396,238)
McLennan	2,265,581	110810	2,200,237	65,344
Midland	526,834	55239	1,096,822	(569,988)
Nacogdoches	571,181	23961	475,768	95,412
Nueces	3,372,415	165282	3,281,829	90,586
Potter	615,402	79916	1,586,807	(971,405)
Randall	454,417	43546	864,647	(410,230)
Smith	1,221,886	49975	992,301	229,585
Tarrant	4,978,372	553405	10,988,376	(6,010,004)
Taylor	829,766	75067	1,490,526	(660,760)
Tom Green	821,327	56412	1,120,113	(298,786)
Travis	2,591,643	218529	4,339,098	(1,747,455)
Val Verde	533,133	18748	372,259	160,874
Victoria	850,533	40573	805,615	44,918
Webb	634,963	38316	760,800	(125,837)
Wichita	1,200,645	94227	1,870,966	(670,320)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-7: ESTIMATES OF SHORTFALLS OR EXCESSES IN MSA  
COUNTIES' ROAD AND STREET EXPENDITURE, 1982**

COUNTY	1982 ACTUAL (\$) EXPENDITURES	1982 VEHICLE REGISTRATIONS	1982 REQUIRED (\$) EXPENDITURES	1982 OVERSPENT/ (UNDERSPENT) (\$)
Angelina	NA	58414	NA	NA
Bell	2,341,339	132241	2,621,044	(279,705)
Bexar	2,926,870	779167	15,443,251	(12,516,381)
Bowie	NA	70647	NA	NA
Brazos	1,468,899	75931	1,504,968	(36,069)
Cameron	944,053	129821	2,573,079	(1,629,026)
Collin	3,294,788	130770	2,591,889	702,899
Coryell	NA	28049	NA	NA
Dallas	18,786,356	1445851	28,657,067	(9,870,711)
Denton	1,613,674	130817	2,592,820	(979,146)
Ector	3,070,638	137904	2,733,286	337,352
El Paso	1,070,549	314625	6,235,933	(5,165,384)
Galveston	3,445,057	158368	3,138,887	306,170
Grayson	NA	87301	NA	NA
Gregg	4,009,205	122197	2,421,970	1,587,235
Harris	81,214,402	2170690	43,023,526	38,190,876
Hidalgo	2,692,164	182706	3,621,271	(929,107)
Jefferson	3,548,136	215332	4,267,925	(719,789)
Lamar	NA	38351	NA	NA
Lubbock	1,325,936	176937	3,506,928	(2,180,992)
McLennan	2,468,450	148365	2,940,625	(472,175)
Midland	1,210,293	103881	2,058,943	(848,650)
Nacogdoches	NA	36851	NA	NA
Nueces	4,650,096	217913	4,319,081	331,015
Potter	664,659	100141	1,984,815	(1,320,156)
Randall	745,087	72609	1,439,125	(694,038)
Smith	2,405,420	121362	2,405,420	0
Tarrant	3,940,854	860607	17,057,409	(13,116,555)
Taylor	886,594	112578	2,231,319	(1,344,725)
Tom Green	964,172	83715	1,659,249	(695,077)
Travis	7,651,936	368500	7,303,746	348,190
Val Verde	NA	27072	NA	NA
Victoria	1,334,760	67410	1,336,080	(1,320)
Webb	2,134,334	62559	1,239,932	894,402
Wichita	1,124,357	119455	2,367,623	(1,243,266)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-8: ESTIMATES OF SHORTFALLS OR EXCESSES IN MSA COUNTIES' ROAD AND STREET EXPENDITURE, 1992**

COUNTY	1992 ACTUAL (\$) EXPENDITURES	1992 VEHICLE REGISTRATIONS	1992 REQUIRED (\$) EXPENDITURES	1992 OVERSPENT/ (UNDERSPENT) (\$)
Angelina	NA	70940	NA	NA
Bell	2,318,183	168436	3,165,083	(846,900)
Bexar	9,692,577	965050	18,134,265	(8,441,688)
Bowie	1,322,335	83477	1,568,617	(246,282)
Brazos	2,063,664	92612	1,740,273	323,391
Cameron	2,190,768	173100	3,252,724	(1,061,956)
Collin	5,664,814	265989	4,998,202	666,611
Coryell	567,761	40692	764,644	(196,883)
Dallas	14,918,153	1632851	30,682,921	(15,764,768)
Denton	2,358,974	252174	4,738,604	(2,379,630)
Ector	3,405,365	116467	2,188,533	1,216,832
El Paso	1,386,190	406603	7,640,482	(6,254,292)
Galveston	7,538,032	192361	3,614,658	3,923,374
Grayson	2,370,249	98823	1,856,984	513,265
Gregg	2,280,562	120162	2,257,965	22,597
Harris	59,730,664	2226657	41,841,137	17,889,527
Hidalgo	3,448,569	258102	4,849,998	(1,401,429)
Jefferson	2,749,976	216334	4,065,135	(1,315,158)
Lamar	NA	47433	NA	NA
Lubbock	886,690	197680	3,714,607	(2,827,917)
McLennan	2,824,515	175353	3,295,060	(470,546)
Midland	1,595,940	107923	2,027,982	(432,042)
Nacogdoches	NA	44672	NA	NA
Nueces	3,517,172	238791	4,487,124	(969,952)
Potter	523,661	99909	1,877,391	(1,353,730)
Randall	1,030,646	89266	1,677,398	(646,752)
Smith	2,685,365	151812	2,852,701	(167,336)
Tarrant	12,258,527	1105964	20,782,182	(8,523,655)
Taylor	1,560,457	114931	2,159,670	(599,213)
Tom Green	1,020,899	94256	1,771,166	(750,267)
Travis	20,990,277	512410	9,628,702	11,361,575
Val Verde	567,852	31382	589,700	(21,848)
Victoria	1,396,454	74315	1,396,454	0
Webb	1,194,252	93610	1,759,027	(564,774)
Wichita	1,201,612	118731	2,231,076	(1,029,464)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-9: FORECASTS OF SHORTFALLS OR EXCESSES IN MSA COUNTIES' ROAD AND STREET EXPENDITURE, 1995**

COUNTY	1995 ACTUAL (\$) EXPENDITURES	1995 VEHICLE REGISTRATIONS	1995 REQUIRED (\$) EXPENDITURES	1995 OVERSPENT/ (UNDERSPENT) (\$)
Angelina	NA	75021	NA	NA
Bell	2,668,120	182882	3,227,603	(559,483)
Bexar	10,697,085	1043484	18,415,982	(7,718,897)
<b>Bowie</b>	<b>1,494,340</b>	<b>84672</b>	<b>1,494,340</b>	<b>0</b>
Brazos	2,300,061	102602	1,810,777	489,284
Cameron	2,211,235	181564	3,204,342	(993,107)
Collin	7,614,305	288441	5,090,566	2,523,739
Coryell	579,392	39182	691,513	(112,121)
Dallas	15,922,316	1784748	31,498,219	(15,575,903)
Denton	2,576,156	270679	4,777,093	(2,200,937)
Ector	3,733,909	130286	2,299,359	1,434,550
El Paso	1,432,340	433340	7,647,824	(6,215,484)
Galveston	10,192,244	200193	3,533,117	6,659,127
Grayson	2,518,750	105638	1,864,358	654,392
Gregg	2,192,286	138198	2,438,995	(246,709)
Harris	92,445,212	2476286	43,702,863	48,742,349
Hidalgo	3,624,391	272910	4,816,466	(1,192,075)
Jefferson	2,508,029	222869	3,933,315	(1,425,286)
Lamar	NA	49415	NA	NA
Lubbock	819,913	205926	3,634,296	(2,814,383)
McLennan	3,140,265	184818	3,261,770	(121,505)
Midland	1,740,373	121109	2,137,399	(397,026)
Nacogdoches	NA	48329	NA	NA
Nueces	3,445,675	253333	4,470,961	(1,025,286)
Potter	518,991	104907	1,851,457	(1,332,466)
Randall	1,116,005	98654	1,741,100	(625,095)
Smith	2,919,064	174503	3,079,725	(160,661)
Tarrant	10,520,099	1209775	21,350,778	(10,830,679)
Taylor	1,429,520	125257	2,210,605	(781,085)
Tom Green	1,049,360	102491	1,808,818	(759,458)
Travis	26,949,322	562772	9,932,111	17,017,211
Val Verde	573,060	33578	592,603	(19,543)
Victoria	1,469,171	81207	1,433,182	35,989
Webb	1,458,458	96077	1,695,620	(237,162)
Wichita	1,220,555	124491	2,197,086	(976,531)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-10: FORECASTS OF SHORTFALLS OR EXCESSES IN MSA COUNTIES' ROAD AND STREET EXPENDITURE, 2000**

COUNTY	2000 ACTUAL (\$) EXPENDITURES	2000 VEHICLE REGISTRATIONS	2000 REQUIRED (\$) EXPENDITURES	2000 OVERSPENT/ (UNDERSPENT) (\$)
Angelina	NA	82283	NA	NA
Bell	2,885,356	203683	3,690,758	(805,402)
Bexar	12,371,265	1153263	20,897,253	(8,525,988)
Bowie	1,629,643	89936	1,629,643	0
Brazos	2,694,055	116130	2,104,288	589,767
Cameron	2,369,562	203303	3,683,873	(1,314,311)
Collin	9,010,602	342336	6,203,166	2,807,436
Coryell	598,778	42044	761,838	(163,060)
Dallas	17,436,268	1940243	35,157,417	(17,721,149)
Denton	2,938,126	318780	5,776,329	(2,838,203)
Ector	4,281,483	137721	2,495,520	1,785,963
El Paso	1,509,255	479926	8,696,312	(7,187,057)
Galveston	12,037,989	218162	3,953,120	8,084,869
Grayson	2,766,252	114188	2,069,099	697,153
Gregg	2,045,160	151059	2,737,206	(692,046)
Harris	103,800,000	2693996	48,815,505	54,984,495
Hidalgo	3,917,427	309365	5,605,728	(1,688,301)
Jefferson	2,306,048	230597	4,178,443	(1,872,395)
Lamar	NA	53690	NA	NA
Lubbock	708,618	218662	3,962,180	(3,253,562)
McLennan	3,310,849	200206	3,627,755	(316,906)
Midland	1,981,095	133902	2,426,319	(445,224)
Nacogdoches	NA	53260	NA	NA
Nueces	3,326,515	271215	4,914,446	(1,587,931)
Potter	511,206	109089	1,976,705	(1,465,499)
Randall	1,258,270	110061	1,994,317	(736,047)
Smith	3,109,623	198659	3,599,723	(490,100)
Tarrant	12,175,535	1350816	24,476,935	(12,301,400)
Taylor	1,603,290	134701	2,440,797	(837,507)
Tom Green	1,096,796	111627	2,022,694	(925,898)
Travis	32,743,670	638200	11,564,254	21,179,416
Val Verde	581,740	36662	664,319	(82,579)
Victoria	1,590,532	89179	1,615,930	(25,398)
Webb	1,554,163	109187	1,978,480	(424,317)
Wichita	1,252,127	129594	2,348,258	(1,096,131)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-11: ESTIMATES OF SHORTFALLS OR EXCESSES IN NON-METRO CITIES' ROAD AND STREET EXPENDITURE, 1972**

CITY	1972 ACTUAL (\$) EXPENDITURES	1972 VEHICLE REGISTRATIONS	1972 REQUIRED (\$) EXPENDITURES	1972 OVERSPENT/ (UNDERSPENT) (\$)
Alice	183,037	12755	302,516	(119,480)
Bay City	360,062	9182	217,783	142,279
Beeville	337,998	8219	194,946	143,052
Big Spring	263,065	24974	592,333	(329,268)
Borger	248,112	14403	341,622	(93,510)
Brownfield	172,090	NA	NA	NA
Brownwood	219,499	15140	359,084	(139,585)
Cleburne	432,323	14415	341,900	90,422
Corsicana	222,658	16111	382,120	(159,462)
Denison	593,351	19128	453,672	139,679
Eagle Pass	NA	7845	NA	NA
Freeport	483,430	9191	217,996	265,434
Gainesville	220,624	11990	284,374	(63,751)
Greenville	721,366	15650	371,196	350,169
Groves	241,310	12932	306,718	(65,408)
Huntsville	453,940	9830	233,146	220,794
Kingsville	743,624	16770	397,741	345,882
Lamesa	197,441	13911	329,932	(132,491)
Mineral Wells	269,892	13046	309,434	(39,541)
New Braunfels	NA	10200	NA	NA
Palestine	908,948	11210	265,881	643,067
Pampa	301,084	20490	485,985	(184,901)
Plainview	238,217	19118	453,450	(215,233)
Seguin	224,985	11447	271,509	(46,524)
Snyder	114,798	11310	268,243	(153,445)
Sweetwater	240,903	10157	240,903	0
Uvalde	138,594	7592	180,070	(41,477)
Vernon	147,194	10071	238,864	(91,671)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-12: ESTIMATES OF SHORTFALLS OR EXCESSES IN NON-METRO CITIES' ROAD AND STREET EXPENDITURE, 1982**

CITY	1982 ACTUAL (\$) EXPENDITURES	1982 VEHICLE REGISTRATIONS	1982 REQUIRED (\$) EXPENDITURES	1982 OVERSPENT/ (UNDERSPENT) (\$)
Alice	809,170	17482	809,170	0
Bay City	NA	14454	NA	NA
Beeville	NA	10731	NA	NA
Big Spring	1,084,373	26310	1,217,743	(133,370)
Borger	NA	20899	NA	NA
Brownfield	263,172	10784	499,158	(235,986)
Brownwood	NA	19512	NA	NA
Cleburne	NA	19302	NA	NA
Corsicana	NA	19944	NA	NA
Denison	NA	23220	NA	NA
Eagle Pass	NA	10962	NA	NA
Freeport	1,544,052	11812	546,707	997,345
Gainesville	NA	14496	NA	NA
Greenville	1,997,149	19338	895,033	1,102,116
Groves	404,704	14665	678,769	(274,065)
Huntsville	1,103,417	14859	687,724	415,693
Kingsville	897,675	19795	916,188	(18,513)
Lamesa	NA	11079	NA	NA
Mineral Wells	NA	15518	NA	NA
New Braunfels	482,051	14451	668,867	(186,816)
Palestine	NA	13877	NA	NA
Pampa	509,742	25706	1,189,789	(680,047)
Plainview	NA	20078	NA	NA
Seguin	475,101	15867	734,421	(259,320)
Snyder	NA	14174	NA	NA
Sweetwater	NA	12150	NA	NA
Uvalde	NA	11293	NA	NA
Vernon	NA	12086	NA	NA

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-13: ESTIMATES OF SHORTFALLS OR EXCESSES IN NON-METRO CITIES' ROAD AND STREET EXPENDITURE, 1992**

CITY	1992 ACTUAL (\$) EXPENDITURES	1992 VEHICLE REGISTRATIONS	1992 REQUIRED (\$) EXPENDITURES	1992 OVERSPENT/ (UNDERSPENT) (\$)
Alice	253,667	15405	474,039	(220,372)
Bay City	633,942	16534	508,801	125,141
Beeville	474,712	11075	340,799	133,913
Big Spring	740,690	22475	691,627	49,063
Borger	395,235	19962	614,274	(219,039)
Brownfield	154,751	10385	319,573	(164,822)
Brownwood	227,888	19209	591,099	(363,211)
Cleburne	519,553	21777	670,124	(150,571)
Corsicana	471,666	21914	674,349	(202,683)
Denison	888,655	22353	687,872	200,783
Eagle Pass	322,880	11186	344,234	(21,353)
Freeport	210,103	10629	327,068	(116,965)
Gainesville	457,588	14870	457,588	0
Greenville	515,598	23140	712,062	(196,464)
Groves	348,949	14685	451,906	(102,957)
Huntsville	1,116,910	18153	558,625	558,285
Kingsville	617,517	19633	604,145	13,372
Lamesa	245,427	10492	322,875	(77,448)
Mineral Wells	596,488	16815	517,450	79,038
New Braunfels	547,690	16759	515,729	31,961
Palestine	575,834	15028	462,458	113,376
Pampa	590,065	24154	743,284	(153,219)
Plainview	262,165	19858	611,068	(348,903)
Seguin	281,799	16813	517,377	(235,578)
Snyder	348,812	12680	390,188	(41,376)
Sweetwater	338,358	11868	365,196	(26,838)
Uvalde	319,005	8956	275,589	43,416
Vernon	167,524	12471	383,769	(216,245)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]



**TABLE D-14: FORECASTS OF SHORTFALLS OR EXCESSES IN NON-METRO CITIES' ROAD AND STREET EXPENDITURE, 1995**

CITY	1995 ACTUAL (\$) EXPENDITURES	1995 VEHICLE REGISTRATIONS	1995 REQUIRED (\$) EXPENDITURES	1995 OVERSPENT/ (UNDERSPENT) (\$)
Alice	648,482	16439	527,442	121,040
Bay City	675,024	18460	592,302	82,722
Beeville	495,219	11856	380,415	114,804
Big Spring	1,021,296	22064	707,921	313,375
Borger	417,304	20815	667,856	(250,552)
Brownfield	183,052	10023	321,580	(138,528)
Brownwood	363,641	19834	636,390	(272,749)
Cleburne	918,997	23683	759,870	159,127
Corsicana	509,017	22912	735,148	(226,131)
Denison	2,319,813	23857	765,459	1,554,354
Eagle Pass	NA	12716	NA	NA
Freeport	650,091	11103	356,238	293,853
Gainesville	493,133	15370	493,133	0
Greenville	944,289	23812	764,009	180,280
Groves	404,239	14586	467,981	(63,742)
Huntsville	1,436,066	20528	658,657	777,409
Kingsville	670,969	20597	660,861	10,108
Lamesa	400,547	8714	279,590	120,957
Mineral Wells	645,478	16903	542,348	103,130
New Braunfels	NA	17978	NA	NA
Palestine	379,828	15814	507,379	(127,551)
Pampa	712,972	24927	799,793	(86,821)
Plainview	265,757	19426	623,270	(357,513)
Seguin	477,754	19065	611,697	(133,943)
Snyder	383,915	13528	434,058	(50,143)
Sweetwater	352,976	12038	386,235	(33,259)
Uvalde	392,435	11327	363,419	29,016
Vernon	170,573	12792	410,427	(239,854)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-15: FORECASTS OF SHORTFALLS OR EXCESSES IN NON-METRO CITIES' ROAD AND STREET EXPENDITURE, 2000**

CITY	2000 ACTUAL (\$) EXPENDITURES	2000 VEHICLE REGISTRATIONS	2000 REQUIRED (\$) EXPENDITURES	2000 OVERSPENT/ (UNDERSPENT) (\$)
Alice	701,700	16909	584,340	117,360
Bay City	743,494	20240	699,444	44,050
Beeville	529,397	12526	432,875	96,522
Big Spring	1,143,512	20982	725,111	418,401
Borger	454,084	21940	758,193	(304,109)
Brownfield	178,271	9823	339,467	(161,196)
Brownwood	386,116	20505	708,619	(322,503)
Cleburne	999,344	25690	887,794	111,550
Corsicana	571,269	24288	839,354	(268,085)
Denison	2,603,769	24640	851,504	1,752,265
Eagle Pass	NA	13534	NA	NA
Freeport	597,308	11290	390,157	207,151
Galnesville	552,374	15984	552,374	0
Greenville	892,847	25594	884,490	8,357
Groves	431,646	14811	511,840	(80,194)
Huntsville	1,623,400	22670	783,438	839,962
Kingsville	639,442	21255	734,542	(95,100)
Lamesa	434,956	7587	262,191	172,765
Mineral Wells	727,127	17788	614,710	112,417
New Braunfels	NA	19531	NA	NA
Palestine	274,423	16675	576,247	(301,824)
Pampa	796,262	25601	884,729	(88,467)
Plainview	271,744	19311	667,343	(395,599)
Seguin	513,514	20533	709,587	(196,073)
Snyder	442,418	13739	474,808	(32,390)
Sweetwater	377,340	12267	423,914	(46,574)
Uvalde	444,564	11818	408,404	36,160
Vernon	175,656	13312	460,048	(284,392)

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-16: ESTIMATES OF SHORTFALLS OR EXCESSES IN NON-METRO COUNTIES' ROAD AND STREET EXPENDITURE, 1972**

COUNTY	1972 ACTUAL (\$) EXPENDITURES	1972 VEHICLE REGISTRATIONS	1972 REQUIRED (\$) EXPENDITURES	1972 OVERSPENT/ (UNDERSPENT) (\$)
Anderson	826,099	21447	748,864	77,235
Bee	516,234	13837	483,146	33,088
Brazoria	6,147,376	82980	2,897,410	3,249,966
Brown	557,770	22557	787,622	(229,852)
Comal	392,523	19153	668,765	(276,242)
Cooke	575,819	20348	710,491	(134,671)
Dawson	509,422	19982	697,711	(188,289)
Gray	650,256	25416	887,450	(237,194)
Guadalupe	647,570	24106	841,709	(194,139)
Hale	881,394	34177	1,193,357	(311,964)
Howard	907,426	32849	1,146,988	(239,562)
Hunt	856,746	34057	1,189,167	(332,421)
Hutchinson	593,232	24802	866,011	(272,779)
Jim Wells	760,151	20939	731,127	29,024
Johnson	1,014,228	41197	1,438,475	(424,247)
Kleburg	448,415	19235	671,628	(223,213)
Matagorda	1,319,490	19063	665,622	653,868
Maverick	280,516	9239	322,598	(42,082)
Navarro	730,720	25128	877,394	(146,673)
Nolan	478,572	13706	478,572	0
Palo Pinto	402,497	20523	716,601	(314,104)
Scurry	904,716	15740	549,593	355,123
Terry	571,624	14261	497,951	73,673
Uvalde	333,320	12236	427,244	(93,924)
Walker	387,981	15451	539,502	(151,522)
Wilbarger	617,634	13501	471,414	146,220

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-17: ESTIMATES OF SHORTFALLS OR EXCESSES IN NON-METRO COUNTIES' ROAD AND STREET EXPENDITURE, 1982**

COUNTY	1982 ACTUAL (\$) EXPENDITURES	1982 VEHICLE REGISTRATIONS	1982 REQUIRED (\$) EXPENDITURES	1982 OVERSPENT/ (UNDERSPENT) (\$)
Anderson	NA	33397	NA	NA
Bee	NA	19167	NA	NA
Brazoria	8,243,014	148998	4,959,972	3,283,042
Brown	549,581	33254	1,106,987	(557,406)
Comal	733,010	36524	1,215,842	(482,832)
Cooke	NA	28472	NA	NA
Dawson	807,934	15208	506,257	301,677
Gray	NA	31701	NA	NA
Guadalupe	NA	41511	NA	NA
Hale	NA	34019	NA	NA
Howard	NA	35154	NA	NA
Hunt	1,346,838	48209	1,604,822	(257,984)
Hutchinson	NA	34712	NA	NA
Jim Wells	NA	30441	NA	NA
Johnson	NA	67944	NA	NA
Kleburg	822,327	22921	763,014	59,313
Matagorda	NA	30653	NA	NA
Maverick	NA	16078	NA	NA
Navarro	NA	32447	NA	NA
Nolan	747,752	17228	573,500	174,252
Palo Pinto	NA	25808	NA	NA
Scurry	NA	20295	NA	NA
Terry	NA	15139	NA	NA
Uvalde	NA	17874	NA	NA
Walker	1,134,208	25941	863,546	270,662
Wilbarger	504,892	15167	504,892	0

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-18: ESTIMATES OF SHORTFALLS OR EXCESSES IN NON-METRO COUNTIES' ROAD AND STREET EXPENDITURE, 1992**

COUNTY	1992 ACTUAL (\$) EXPENDITURES	1992 VEHICLE REGISTRATIONS	1992 REQUIRED (\$) EXPENDITURES	1992 OVERSPENT/ (UNDERSPENT) (\$)
Anderson	1,420,558	39923	1,381,258	39,300
Bee	NA	20190	NA	NA
Brazoria	7,224,141	190246	6,582,139	642,001
Brown	885,995	35721	1,235,877	(349,882)
Comal	1,367,928	56031	1,938,563	(570,635)
Cooke	NA	32281	NA	NA
Dawson	735,328	13650	472,263	263,065
Gray	810,876	28362	981,270	(170,394)
Guadalupe	NA	59405	NA	NA
Hale	NA	32216	NA	NA
Howard	NA	31301	NA	NA
Hunt	1,929,340	65143	2,253,820	(324,480)
Hutchinson	NA	32298	NA	NA
Jim Wells	NA	29784	NA	NA
Johnson	2,598,098	98286	3,400,503	(802,406)
Kleburg	654,963	23450	811,324	(156,361)
Matagorda	NA	34530	NA	NA
Maverick	464,162	22018	761,780	(297,618)
Navarro	NA	37982	NA	NA
Nolan	746,608	16002	553,638	192,970
Palo Pinto	NA	27790	NA	NA
Scurry	NA	19434	NA	NA
Terry	NA	14098	NA	NA
Uvalde	414,661	19702	681,651	(266,989)
Walker	1,184,464	34235	1,184,464	0
Wilbarger	777,147	15146	524,022	253,125

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-19: FORECASTS OF SHORTFALLS OR EXCESSES IN NON-METRO COUNTIES' ROAD AND STREET EXPENDITURE, 1995**

COUNTY	1995 ACTUAL (\$) EXPENDITURES	1995 VEHICLE REGISTRATIONS	1995 REQUIRED (\$) EXPENDITURES	1995 OVERSPENT/ (UNDERSPENT) (\$)
Anderson	1,509,727	42988	1,487,861	21,866
Bee	NA	21590	NA	NA
Brazoria	8,952,995	205195	7,102,035	1,850,960
Brown	942,613	38482	1,331,892	(389,279)
Cornal	1,520,548	45981	1,591,452	(70,904)
Cooke	NA	34336	NA	NA
Dawson	761,261	11058	382,730	378,531
Gray	834,969	29473	1,020,098	(185,129)
Guadalupe	NA	64532	NA	NA
Hale	NA	30737	NA	NA
Howard	NA	30926	NA	NA
Hunt	1,714,089	68599	2,374,304	(660,215)
Hutchinson	NA	33915	NA	NA
Jim Wells	NA	31582	NA	NA
Johnson	2,835,678	106774	3,695,571	(859,893)
Kleburg	674,346	23998	830,581	(156,235)
Matagorda	NA	38932	NA	NA
Maverick	409,481	23488	812,943	(403,462)
Navarro	NA	39770	NA	NA
Nolan	781,020	16689	577,632	203,388
Palo Pinto	NA	28717	NA	NA
Scurry	NA	20422	NA	NA
Terry	NA	14201	NA	NA
Uvalde	351,082	21257	735,722	(384,640)
Walker	1,289,023	37243	1,289,023	0
Wilbarger	809,324	15456	534,964	274,360

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**TABLE D-20: FORECASTS OF SHORTFALLS OR EXCESSES IN NON-METRO COUNTIES' ROAD AND STREET EXPENDITURE, 2000**

COUNTY	2000 ACTUAL (\$) EXPENDITURES	2000 VEHICLE REGISTRATIONS	2000 REQUIRED (\$) EXPENDITURES	2000 OVERSPENT/ (UNDERSPENT) (\$)
Anderson	1,658,342	47470	1,660,124	(1,782)
Bee	NA	23057	NA	NA
Brazoria	9,421,222	230414	8,058,039	1,363,183
Brown	1,036,976	41547	1,452,982	(416,006)
Cornal	1,774,914	52060	1,820,635	(45,721)
Cooke	NA	37133	NA	NA
Dawson	804,484	9097	318,154	486,330
Gray	875,124	29938	1,046,988	(171,864)
Guadalupe	NA	73334	NA	NA
Hale	NA	29644	NA	NA
Howard	NA	29982	NA	NA
Hunt	1,913,743	76221	2,665,615	(751,872)
Hutchinson	NA	35360	NA	NA
Jim Wells	NA	33434	NA	NA
Johnson	3,231,646	121197	4,238,502	(1,006,856)
Kleburg	706,652	24875	869,918	(163,266)
Matagorda	NA	42775	NA	NA
Maverick	442,934	26564	928,996	(486,062)
Navarro	NA	42819	NA	NA
Nolan	838,375	17025	595,384	242,991
Palo Pinto	NA	30471	NA	NA
Scurry	NA	21102	NA	NA
Terry	NA	14074	NA	NA
Uvalde	359,935	22994	804,153	(444,218)
Walker	1,463,288	41842	1,463,288	0
Wilbarger	862,952	15762	551,222	311,730

NOTE: [All Dollar amounts are expressed in 1982 Dollars]

**APPENDIX E:**  
**CALCULATING STANDARDIZED FISCAL HEALTH**





## CALCULATING STANDARDIZED FISCAL HEALTH

Standardized fiscal health “summarizes the effect of external economic and social factors on [a city/county's] ability to deliver public services.” (Ladd and Yinger, 1989, pp. 103) It is the difference between a city/county's revenue raising capacity and its standardized expenditure need. What follows is an explanation of how each of the two components of standardized fiscal health are determined.

### REVENUE RAISING CAPACITY

Revenue raising capacity measures how much revenue can be raised by a city/county with a given (standard) tax burden on its residents. We calculate RRC as follows:

$$\text{RRC} = K^*Y(1 + e)$$

where  $K^*$  is the standard tax burden (assumed to be 4.35%),  $Y$  is per capita resident income, and  $e$  is the city/county's tax export ratio.

Texas cities/counties raise revenue through property taxes and sales taxes. No Texas city/county has an income tax. Thus, a city/county's ability to export its tax burden to non-residents is comprised of two parts: its ability to shift property taxes and its ability to shift sales taxes. A Texas city/county's tax export ratio is then:

$$e = 2/3 \text{ PTER} + 1/3 \text{ STER}$$

where PTER is property tax export ratio and STER is sales tax export ratio. The weights are indirectly taken from Ladd and Yinger: they are assigned weights of 1/2, 1/4, and 1/4 to property, sales, and income taxes, respectively. We carry on the assumption that property taxes carry twice the weight of sales taxes in determining the overall export ratio.

The next step is to calculate the property tax export ratio and the sales tax export ratio.

### **Property Tax Export Ratio**

Following the method of Ladd and Yinger (LY), property tax export ratios are calculated as follows:

$$PTER_{j,t} = \sum_i (\theta_i \frac{\$value_{i,j,t}}{\sum_i \$value_{i,j,t}})$$

where:  $PTER_{j,t}$  is property tax export ratio in city/county  $j$  in year  $t$ ,  $\theta_i$  is the ratio of tax falling on non-residents to tax falling on residents for property type  $i$ , and  $\$value_{i,j,t}$  is the dollar market value for property type  $i$  in city/county  $j$  in year  $t$ .

Property types are classified on the basis of who bears the burden of the tax on that particular type of property. The classifications are as follows: owner occupied housing; 2-4 unit rental housing; 5+ unit rental housing; commercial; industrial; vacant acreage, other; and state assessed (i.e., utilities and railroads).

Data limitations forced us to modify the LY technique somewhat. Using the Statistics on Real Property Assessments and Measurable Sales in the Census of Governments, we were able to classify property into four categories as follows: (1) single family housing, (2) multi-family housing, (3) commercial and industrial property, and (4) vacant acreage and other. Multi-family housing was calculated as the difference between total nonfarm residential property and single family houses.

Property value data was unavailable for 1972. Data from 1977 was used to fill in this missing data.

The purpose of  $\theta_i$  in the above formula is to isolate the proportion of the property tax that falls on non-residents. It is determined separately for each of the four classes of property as follows.

Single family housing: Single family homes were assumed to be 90% owner occupied. In addition, it was assumed that the remaining 10% of the owners were city/county residents. Thus, none of the property taxes attributable to single family housing are shifted to non-residents in our study.

Multi-family housing: The proportion of the property tax on multi-family housing allocated to non-residents is 1.4%. This is the percentage of the tax falling on landowners (20%) times the percentage of owners of multi-family housing residing outside the city/county (7%).

Commercial and industrial property: The allocation to non-residents of taxes paid on this category of property is determined in three parts. First, 35% of the tax is assumed to be passed on to consumers. This percentage is then multiplied by the percentage of consumers residing outside the city/county. 47.25% of the tax is assumed to fall on workers, half of which are assumed to reside outside the city/county. 17.75% of the tax is assumed to fall on landowners, 60% of whom are assumed to reside outside the city/county limits. The sum of these three components is the proportion of property taxes paid on commercial and industrial property falling on non-residents.

## Sales Tax Export Ratio

This follows Bradbury and Ladd (1985). Sales taxes are assumed to be borne 100% by consumers. The goal, then, is to estimate spending by residents so that sales to non-residents may be calculated as (total retail sales - resident portion of retail sales). The estimation procedure is as follows:

*Estimating Spending by Residents:*

$$SBR_{i,t} = \bar{Y}_{i,t} \sum_j APC_{ij,t}$$

where SBR is spending by residents, Y(bar) is per capita income, and APC is average propensity to consume. Also, i and t denote city/county and year, respectively. J denotes spending category. Spending categories are purchases at food and drug stores, purchases of food and drink at restaurants, and purchases of other taxable items.

The key to estimating spending by residents is in the determination of average propensity to consume.

*Estimating  $APC_{s,j,t}$ :*

$$APC_{s,j,t} = \frac{(\text{RetailSales}_{s,j,t} - \text{“EstimatedContributionsbyTourists}_{s,j,t}\text{”})}{Y_{s,j,t}}$$

Note that APCs calculated for SMSAs were converted to city/county APCs by

multiplying by the ratio of city/county per capita income to SMSA per capita income.

We are trying to isolate those retail sales made to city/county residents, so we need to remove sales made to non-residents.

Determining contributions by tourists involves using coefficients from a regression of SMSA sales to income ratio on per capita income and motel-hotel receipts. The regression is as follows:

$$\frac{SMSASales_{s,j,t}}{SMSAIncome_{s,t}} = \alpha + \beta_1 \overline{Y}_{s,t} + \beta_2 \frac{MotelHotelReceipts_{s,t}}{Population_{s,t}} + e_{s,j,t}$$

Contributions by tourists can then be calculated as:

$$CBT_{s,j,t} = \frac{\frac{SMSASales_{s,j,t}}{SMSAIncome_{s,t}} - \alpha - \beta_1 \overline{Y}_{s,t}}{\beta_2}$$

where the Greek letters are now estimated coefficients from the above regression.

Once we have determined contributions by tourists, we can calculate average propensity to consume as described earlier. Spending by residents is subtracted from a city/county's total retail sales to determine retail sales to non-residents. Sales tax export ratio is then the ratio of retail sales to non-residents to total retail sales.

## STANDARDIZED EXPENDITURE NEED

After determining cities/counties' revenue raising capacity, their standardized expenditure need is calculated to determine fiscal health. Standardized expenditure need (SEN) is defined as "the amount [a city/county] must spend to obtain a standardized service quality for a standardized package of responsibilities." (Ladd and Yinger, 1989, pp. 79) The standardization affords the consideration of factors outside of a city/county's control. For example, the analysis excludes a city/county's efficiency in providing services.

To determine SEN, costs are divided among three types of services: general, police, and fire. The SEN (in dollars) for city/county  $j$  is:

$$SN_j = 117.5CG_j + 21.18CP_j + 12.22CF_j$$

where CG, CP, and CF are cost indexes for general, police, and fire services, respectively. The weights are 1972 national average service responsibility indexes. Since SEN is later converted into an index, the weights were retained from LY. Unless these weights differ substantially in Texas from the national averages, the results will not be affected.

The three cost indexes are based on three cost functions, one for each of the three service types. The cost functions are of the following form:

$$C_j = I_j^c * X_{1j}^{a_1} * X_{2j}^{a_2} * \dots * X_{Nj}^{a_N}$$

where  $I$  represents service costs, the  $X$ 's are environmental factors, and the  $a$ 's are parameters estimated in regressions described below. The cost indexes are calculated by dividing each city/county's  $C_j$  for each service type in each year by the average for that service type and year

of all cities/counties and multiplying by 100.

The estimated parameters mentioned above are from regressions of city/county spending on the three service types on a variety of cost and environmental factors (see Table E-1). These parameters are then plugged into the associated cost functions along with the relevant cost and environmental factors to yield the  $C_j$ 's. From there, the  $CG_j$ ,  $CP_j$  and  $CF_j$  indexes are created as described above.

Each of the three cost indexes are used to calculate  $SN_j$ .  $SN_j$  is then converted to an index by dividing  $SN_j$  in each city/county in each year by the average  $SN_j$  for that year and multiplying by 100. The index is then manipulated so that on average, cities/counties exactly use up their revenue raising capacity. Each city/county's standardized expenditure index is multiplied by the factor that equates the average RRC to the average indexed  $SN_j$ . This is done for each year. Standardized expenditure need in dollars is the result. This is subtracted from RRC to yield "Capacity minus Need," which is further divided by RRC to result in the Fiscal Health Index (FHI).

## **ABRIDGED METHOD**

The fiscal health indexes (FHI) obtained from the above method yielded indexes for only a fraction of the MSA cities in our study group. The method described above is highly data intensive, as can be seen from Table E-1. Consequently, sufficient information to compute the FHIs was available only for the largest of the MSA cities. Information for the counties and small non-metro cities in our group was limited. Thus, using the above data intensive method, alone, would not have provided FHI for most of the cities and counties in our study.

To circumvent the problem posed by data limitations we used a modified approach. We identified the most important variables which determine FHI (those which had the heaviest



weights in computing FHI) from our original regression model. The 7 variables so chosen were: *Population, Per Capita Income, Percentage of Old Housing, Poverty percentage, Unemployment Rate, Share of Metropolitan Population, (in percent), and Population Change* in last 5 years. In addition, we had dummy variables to account for year to year variations: Dummy77, Dummy82, Dummy87, and Dummy92. 1972 was the reference year.

The variables mentioned above were collected for the years 1972, 1977, 1982, 1987, and 1992 for the MSA cities for which we had computed FHI using the data intensive method, outlined in the previous section. Using those earlier obtained FHI scores as the dependent variable and the variables discussed in the preceding paragraph as the independent variables in a regression model, we obtained coefficient estimates for our 7 variables and year dummies. The sum of the product of these 7 variables and year dummies multiplied by their corresponding coefficients would yield FHI estimates for our cities and counties.

Now that we were in a position to approximate FHI, with far fewer variables as compared to the original method, we applied it to all the cities and counties in our study group for which we had data on these 7 variables. With this simplified model we computed the FHI scores for most of the cities and counties in our study group. For a given city/county the year dummy variable which corresponded to the particular year, for which FHI was being computed, assumed a value of “1” (example if data was for 1982 then, Dummy82=1, and Dummy77, Dummy87, and Dummy92 would all equal zero - hence, only that particular year’s coefficient would affect the FHI score) Please note, that we DID recompute the FHI scores of the MSA cities for which we had obtained fiscal health indexes using the more complicated data intensive method. This was required to allow for comparison with the other MSA cities and counties whose FHI scores were estimated using the “Abridged Method”.

Fiscal Health Indexes are all reported in Tables 3-7A1-A3 (MSA cities), 3-8A1-A3 (MSA counties), 3-9A1-A3(Non-Metro cities), and 3-10A1-A3 (Non-Metro counties). The

Fiscal Health Index can be interpreted as follows: San Antonio has a fiscal health index of -11.87% in 1972 (see Table 3-7A1). San Antonio would need a revenue raising capacity increase of 11.87% (from outside sources) in order to provide services of quality equal to the average 1972 city in the group. A positive fiscal health index indicates that the city/county in question will have excess RRC after an average quality bundle of standard services has been provided, which would allow it to afford better services for its residents or lower taxes.

Fiscal Health projections for 1995 and 2000 are presented in Tables 3-15 through 3-18. The indexes are standardized with respect to the 1972 median FHI. The projections were obtained for each city/county by a simple linear regression of the fiscal health indexes for 1972, 1982, and 1992.

**TABLE E-1: VARIABLES INCLUDED IN REGRESSIONS USED TO DETERMINE COST INDEXES FOR GENERAL, FIRE, AND POLICE SERVICES.**

<b>VARIABLE</b>	<b>GENERAL</b>	<b>FIRE</b>	<b>POLICE</b>
<b>Elder:</b> Percent of population over 65	■	■	■
<b>Owner:</b> Percent of housing units owner occupied	■	■	■
<b>Lnhompr:</b> log of housing price index	■	■	■
<b>Lnmanwge:</b> log of manufacturing wage index	■		■
<b>Dummycty:</b> dummy for city manager	■	■	■
<b>Lnpci:</b> log of per capita income	■	■	■
<b>Hhsize:</b> log of household size	■	■	■
<b>Voters:</b> log of potential voters per household	■	■	■
<b>Lnptxbs:</b> log of per capita property tax base	■	■	■
<b>Lnpop:</b> log of city population	■	■	■
<b>Density:</b> city population density	■	■	■
<b>Density2:</b> density squared	■	■	■
<b>Oldhouse:</b> percentage of housing units over 20 years old	■	■	■
<b>Onehouse:</b> percentage of housing units in one-unit buildings		■	■
<b>Poverty:</b> percentage of population below poverty line	■	■	■
<b>Unemploy:</b> city unemployment rate			■
<b>Relpop:</b> city population as a percent of SMSA population	■	■	■
<b>Empriv:</b> private employment as a percent of city population	■	■	■
<b>Empgov:</b> ratio of government to private employment	■	■	■
<b>Expsales:</b> exportable sales tax base	■	■	■
<b>Fedaid:</b> federal aid	■	■	■
<b>Stateaid:</b> state aid	■	■	■
<b>Prornter:</b> rental housing	■	■	■
<b>Protrade:</b> trade property	■	■	■
<b>Proservice:</b> service property	■	■	■
<b>Proindus:</b> industrial property	■	■	■

VARIABLE	GENERAL	FIRE	POLICE
<b>Provacant:</b> vacant property	■	■	■
<b>Lagged:</b> dependent variable	■	■	■



**APPENDIX F:**  
**INTERVIEW ABSTRACTS AND TRANSCRIPTS**



## ABSTRACT

**CITY:** Abilene  
**OFFICIAL(S)**  
**INTERVIEWED:** Rick Myers, Street Superintendent  
**DATE/TIME:** June 22, 1993/10:00 a.m.

<b>ECONOMIC/ REVENUE</b>	<p>They have had very slow economic growth since the oil bust. Funding for roads is almost completely local. The last bond election was 1992; funding went to fire fighting equipment. Bond elections for reconstruction don't pass often enough because people are reluctant to spend money on infrastructure. Developers pay for putting in streets. The city does not charge impact fees.</p>
<b>ISTEA FUNDS</b>	<p>Abilene has not received any funds. Mr. Myers is not optimistic about receiving funds in the near future. He stated, "I think the state will probably receive funding but I don't believe that cities will."</p>
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	<p>Their priority is maintenance. They have an aging infrastructure that is entering a critical period. They have a strong sealcoating program. Under the program, they sealcoat every five years, seven maximum. (Goal: 50 miles/year) However, the streets must eventually be reconstructed. They are able to fund all maintenance each year (overlay and reconstruction are not considered maintenance). The streets are in fair condition, but if they continue at the same rate, in 10 to 15 years they will be in poor condition.</p>
<b>PAVEMENT MANAGEMENT SYSTEM</b>	<p>They use MicroPaver, Version 3 through the University of Illinois at Urbana-Champaign. The original fee was \$300; it costs \$200/year for support. Prior to MicroPaver, they used original Paver. They did not have much success with the old system because APWA was "bouncing it from one low bidding vendor to another." The costly part of Paver could be attributed to the fact that interactive time with the database resulted in high long distance phone bills.</p>
<b>MISC</b>	<p>Major street projects: just completed several in the south part of town which is the area currently under development.</p> <p>They have a fairly stable soil. The last several years have been wet, so they haven't been able to keep up with sealcoating.</p>



**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Abilene  
**OFFICIAL(S)**  
**INTERVIEWED:** Rick Myers, Street Superintendent  
**DATE/TIME:** 22 June/10:00 a.m.

*What is your perception of the economic growth in Abilene?* Very, very slow growth. It is improving since the oil bust. I think we will continue to have slow growth.

*Where does your funding for roads and bridges come from?* It is almost completely local. The funding comes from the general fund which comes from property and sales tax.

*Have you received any ISTEA funds? No. Do you think that you will? No. Why? I think the state will probably receive funding, but I don't believe that cities will.*

*Do you have a pavement management system?* I have MicroPaver. We are working on it. We just got the latest software...Version 3. Prior to MicroPaver, we have the original Paver system. We didn't have too much success with it because the APWA who was administering the program kept bouncing it from one low bidding vendor to another. You didn't know from one year to the next what your phone bill was going to be. *What are the capabilities of MicroPaver?* It can do anything the Paver program can do...except it resides in a PC. *How expensive is this program?* Very inexpensive. I think the original fee was \$300 to, more or less, join up. It runs about \$200 a year for support.

*How expensive was the original Paver program?* Paver was operated by the American Public Works Association (APWA). They also have a support system for MicroPaver but I'm going through the University of Illinois at Urbana-Champaign. They also support MicroPaver. The United States Corps of Army Engineers invented it, and they are located there with the University of Illinois. I'm getting it cheaper. The cost of the original Paver was interactive time; the cost was just horrendous. I expect that it still is. Most of the work was batch work; you couldn't get in to work with your database except by long distance.

*So many of the people we have spoken to have said that the cost of a pavement management system is prohibitive: \$500,000 for start-up and \$50-60,000 every year thereafter. Why have they said that it would be so costly?* The start-up is primarily inspections. Every street has to be ....essentially each block has to be inspected. Twenty five to thirty percent of each block is a sample unit. We are talking about mountains of

data.

**What is your priority: maintenance or construction?** Maintenance. **Have you done a pretty good job keeping up with maintenance?** Well, as well as anybody else who is dealing with an aging infrastructure. **The people we have spoken with in Midland and Odessa mentioned seeing the next six to eight years as a critical period because of the age of the majority of their streets. Do you see a similar period coming up here?** I agree with Midland and Odessa; we are entering a critical period. We have a strong sealcoating program and that is a good preventative maintenance function, but it doesn't last indefinitely. Eventually if you sealcoat and sealcoat and sealcoat, you are just wasting money. Eventually all streets have to be reconstructed.

**What percentage of the maintenance that needs to be done each year is actually done?** As far as maintenance is concerned, normally, we are able to fund everything we need to do in a year. But I don't consider reconstruction and overlay to be maintenance. That is major rehabilitation. They haven't been funding that.

**Does the city issue bonds to pay for reconstruction? When they pass. They don't pass often?** They don't pass often enough. The last bond election we had was last year. There was a lot of reconstruction, drainage and a new library, and some fire fighting equipment. The only thing that passed was the fire fighting equipment. They are reluctant to spend money on the infrastructure. Public safety, yes. Infrastructure, no. **Why is that? Does the infrastructure appear to be in fairly good condition to the average voter?** When most people drive to work, they use the freeway. They very rarely get into the older sections of town. While the people in the older sections of town are so accustomed to having old streets, they don't complain that much. The streets in the newer developments are in excellent condition. So the people who would normally voice an opinion concerning the quality of the streets live on good streets. And they use the freeways, which are state maintained. **Do the developers have to pay for the roads within their developments?** Yes.

**What about impact fees? (Explanation of impact fees)** That is a new one to me. If they have something like that, they have been keeping it a secret. I don't think they are.

**What is your impression of the road conditions in Abilene?** Overall, I would say the streets are in fair condition. There are a lot in the newer subdivisions that are in good to excellent condition; there are a lot in the older subdivisions that are in poor condition. Very few are failed through the entire section of the street...I have a block here, a block there. It is not cost effective to do anything with it but rebuild when the funds become available. **What condition do you think your roads will be in ten to fifteen years?** Hopefully, I won't be here. If we continue the way we are going now, I would say fair would be the better streets. The overall infrastructure would probably be rated poor to fair. That is ten years from now. Five years from now, probably not. If we don't get funding for infrastructure maintenance, we are going down the tubes. Everybody knows

that. It is just a matter of time.

***Have you had any major change in traffic pattern or mix?*** Not recently. Not in the past eight years.

***What about major projects?*** We just completed several major projects in the south part of town which is the area that is being developed now. They put in about four miles of arterial type streets. They've put in a new section of the loop. Another old four-lane street that ties the main part of town to the recently constructed Mall of Abilene where most of the traffic is. We built a four-lane arterial to bleed off some of that traffic. I would say that our construction is primarily in the south side of town where everything is developing.

***Is your sealcoating done in a cycle?*** Yes. Arterials and collector streets we like to sealcoat every five years....seven maximum. Residential streets no more than ten years. It is hard to hit the target on residential because there are so many of them. We wind up with arterials and collectors coming around the cycle before we get to some of the residential streets. We strive for a million square yards a year, about fifty miles. The last several years have been extremely wet, and we haven't been keeping up with our sealcoating.

***How are you affected by the weather or soil?*** We aren't really affected by the soil. We have a fairly stable soil. Most of our newer streets have a lime-stabilized subgrade... six to ten inches of crushed limestone with a hot mix overlay. It doesn't move around all that much. It is flexible. We have very little rigid pavement; very little concrete. The central business district is the only area where we have (four miles total) concrete streets.

***Do you have anything else to tell us?*** We need more people. We need more money.

## ABSTRACT

**CITY:** Abilene  
**OFFICIAL(S)**  
**INTERVIEWED:** Roy McDaniels, Assistant City Manager  
**DATE/TIME:** June 22, 1993/1:30 p.m.

ECONOMIC/ REVENUE	<p>The general economic climate is good compared to three years ago. They expect some modest growth, but they don't expect to match Houston or Dallas. For the first time in 10 years, the tax base has gone up 4 to 5%. Their primary source of funding for streets is the state, but several streets are state highways. Most maintenance is funded locally. Minor repairs are funded by the operating budget, and construction/reconstruction is funded through bond sales. Developers pay for 100% of the streets in their subdivisions.</p>
ISTEA FUNDS	<p>Mr. McDaniels had never heard of ISTEA.</p>
RELATION WITH LOCAL MPO	<p>He was not familiar with what an MPO is or who runs it.</p>
ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND	<p>Their priority of maintenance or construction varies from year to year. This year the priority is maintenance to upgrade sealcoating and pavement repair. The amount of maintenance that is actually done compared to what needs to be done depends on weather conditions. They have had seven wet years that have hindered maintenance. On a scale of 1 to 10, road conditions are about a 5. In the next 5 years, they expect to be up to a 7 or 8.</p>
PAVEMENT MANAGEMENT SYSTEM	<p>They use the Paver program. It is an inventory system showing construction and maintenance. The cost of supporting the system (2 data entry people) is approximately \$15-20,000.</p>
MISC	<p>The state helped on Rebecca Ln. and Catclaw Dr. projects. The state paved streets and the city bought right-of-way and put in the curb and gutter.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Abilene  
**OFFICIAL(S)**  
**INTERVIEWED:** Roy McDaniels, Assistant City Manager  
**DATE/TIME:** June 22, 1993/1:30 a.m.

*What is your impression of the general economic climate in Abilene?* I would characterize it as good as opposed to bad three years ago. We are not where we were in '83 or '84 but we probably never will be. We are substantially better than we were at the bottom. *Do you see this trend of slow growth continuing?* I think we are going to see some modest growth in the near term. We won't match Houston or Dallas, but we have the water and resources to support a 20-40% increase in population.

*Has your tax base seen a decline?* For the first time in nine or ten years, our tax base appears to be up. At our peak, we had right at \$3 million in tax revenues. We got all the way down to just barely \$2 million. This year we may have a 4-5% increase for the first time in several years. We are still a long ways away from where we were and where we ought to be if oil prices had stayed where they were.

*Where does your funding for roads and bridges come from? Do you get any state help?* That is a tough question. The state maintains the state highways, several of which are in the city. Several of our major streets are actually state highways. Through various means and methods, we get state participation in construction or reconstruction of a few roads and streets. And, they maintain what they have already got. So, yeah we are getting some help from them. I wouldn't say it is our primary source of funding. Most of our maintenance is local funding.

*Have you received any ISTEA funding...the Intermodal Surface Transportation Act?* I've never heard of that, so I guess we haven't.

*What is your relationship with your local MPO? What is that? Who runs it? Well, we have a local Council of Governments. Probably our planners are most involved with that. I haven't had any dealings with that. We do have some grant money through the planning department. It is a transportation planning grant that is primarily used for mapping where streets should go and the data collection associated with the traffic flow and whatnot.*

*Do you use bonds to pay for construction and reconstruction of your roads?* Partially. We try to do a substantial amount of sealcoating and minor repairs out of the operating budget. Major construction and reconstruction generally involves borrowed funds.

***What is your main priority: maintenance or construction?*** That will vary from year to year. Right now our primary focus is some maintenance. We built several new streets in the last few years. We have a couple going on at the present time. Right now my primary concern is maintenance funds to continue to upgrade our sealcoating and pavement repair.

***How much of the maintenance that needs to be done in a given year are you able to pay for?*** That is a tough question because it's not always just funding. Weather has a lot to do with it. You can't sealcoat in the rain and we've had seven wet years. We didn't get near as much maintenance work done last year as we had money for because of rainy weather. This year is starting out hot and dry so I'm scurrying for money to make sure we can keep working all summer, if the weather allows.

***Do you have a pavement management system?*** We have a Paver program which is basically an inventory showing original construction, various things that have been done to it (the road), when we need to go back into it, that sort of thing. ***Is it worth the cost?*** Sure. It has been tough keeping it updated. It has to be kept current and that takes people. ***What is the yearly cost associated with Paver...including the people who are out there gathering data?*** At least two part-time data entry people; you have your field people who are supposedly bringing in data. I'd guess \$15-20,000.

***What is your impression of the road conditions in Abilene?*** On a scale of one to ten, we are probably about a five. ***In another five years?*** I would hope to be up to a seven or an eight. ***Will the funds be available for that?*** I hope we will have, either through the operating budget or borrowing money.

***What major road projects are currently underway?*** We finished Rebecca Lane eighteen months ago. We finished Catclaw Drive ten months ago. We are in the process of letting bids on Old Anson Road bridge. Those are all our projects. The state did help on Rebecca Lane and Catclaw Drive. Industrial Boulevard was just finished. That was all our funds. Buffalo Gap and the South 27th intersection was just finished with all our funds. 8384 Bypass out by the hospital is all state and is in the middle of a three-year construction period. ***How did you get the state to contribute money to the Catclaw Drive and Rebecca Lane projects?*** We asked the District Engineer if he had any funds available. Generally, if they do they will come back and say, "I can participate in paving if the city will get the right-of-way and take care of the curb and gutter."

***Do you charge impact fees?*** In some ways, yes. I'm not sure how far you are taking the concept of impact fees, but if you want to go out here and develop a big piece of property you are going to pay for all of the streets and roads within the subdivision, 100%. You are going to pay for all the water and sewer within that subdivision and a pro rate fee of whatever it takes to get that service to you. If I have to run water a mile to get to you, you are going to have to pay a portion of that. In that sense, yes, we do have some impact fees.

## ABSTRACT

**CITY:** Amarillo  
**OFFICIAL(S)**  
**INTERVIEWED:** Mike Kennedy, Director of Public Works  
**DATE/TIME:** July 14, 1993/1:00 p.m.

<b>ECONOMIC/ REVENUE</b>	Virtually all funding for streets is local. A portion comes from CDBG funds. Their bond indebtedness is going to be zero next year. There is a street and drainage improvement fund available for "projects that come up."
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	General road conditions are good to excellent. The residential streets are divided into seven sectors. One sector is sealcoated each year; therefore, all residential streets are sealcoated every 7 years. The overlay program is a 12 year cycle. They develop a list of potential candidates, rate them by severity, and do the worst ones first.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	They do not have a formalized one, but they do at least try to catalog streets. They have looked at different ones but don't feel the need for one since they are able to meet maintenance needs.
<b>MISC</b>	Weather: There was a budget amendment last year because of an unusually harsh winter.  Major projects: Two Wal-Mart superstores are being built. The city is widening arterials adjacent to those sites. These projects weren't budgeted but are being funded through the street and drainage fund.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Amarillo  
**OFFICIAL(S)**  
**INTERVIEWED:** Mike Kennedy, Director of Public Works  
**DATE/TIME:** July 14, 1993/1:00 p.m.

*How much of the funding for local road and bridge maintenance and reconstruction comes from state, local, and federal sources? Virtually all of it is local. Is it primarily from the general fund?* Yes. I'm not aware of any money for street maintenance that we get from the state. There is a portion of the Community Development Block Grant that we get to cover streets. *Does the money allocated for reconstruction and maintenance come from the same fund?* No. Reconstruction is sophisticated maintenance. That is the way we regard it. We do have a CIP program, but that is also funded from the general fund. We haven't sold any bonds for years. Our bond indebtedness is going to be zero this year, or the year after next.

*What are the general road conditions in Amarillo?* I would have to say good to excellent.

*Do you have a pavement management system?* It is not real formalized. We do try to at least catalog our streets by mileage and quantity.

*When we conducted our survey back in September, we were told that you have a sealcoat and overlay program. Is that correct?* Yes. Our sealcoating program is done by the Street Department each year. We have been doing that for twenty or thirty years. It is basically set up on a seven year cycle. That is primarily residential streets. We don't sealcoat arterials. The residential streets are set up for a chipseal or a sealcoat every seven years. That has traditionally been part of the Street Department's operating budget...with all of our own equipment and forces. *The city is broken into seven sectors and you cover one sector each year?* Yes, that is the way the system has worked out. *What kind of cycle is the overlay program on?* That is about ten to twelve years. We do a ... and overlay process. That is all contracted. We do contract that out. Again, we have all of our arterial streets catalogued. We try to cycle through those. The streets that are done each summer aren't as regimented as the sealcoating program. We develop a list of potential candidates each year and go out and inspect them. We try to rate them as far as being in need of an overlay. We rate them in severity and do the worst ones first.

*How are you affected by weather conditions?* We had a budget amendment last year because we had an unusually harsh winter. We had to step up some repairs. That is the first time that has happened in a long time. We have a Street and Drainage Improvement fund that has money in it that is an available source of funds for projects that come up.



***Do you have an annual survey of all of the streets in the city?*** No, we don't have a regular program of rating streets. The sealcoating program is the only based off of time. It is just how long since the last one (sealcoating). We don't rate the condition of those streets. The overlay program is basically cycled around age as well. We do make an effort to try and occasionally inspect the potential candidates each year. There are always some that last longer than you expected and some that need attention. We exercise flexibility in that.

***You are able to keep up with all of the maintenance? You don't have any streets that get close to a failed state?*** I would have to say that no, we don't. Our whole Street Department program is centered around preventative maintenance.

***Do you know what the average age of your streets is?*** Probably the biggest residential construction period that we had was in the 1960's and 1970's. I would say that the majority of the streets are probably about thirty years old. There are certainly a fair number that are fifteen or twenty years old also.

***Has there been a substantial change in traffic pattern or mix?*** Not really. I think the overall development planning for the city has been real good. We basically have a square mile arterial system. Streets are developed as development moves on out. A county road that had low volume would be a candidate for upgrade to arterial status when its development comes in. We try to budget for that roadway improvement.

***Does the city do any annexing?*** Amarillo has not experienced significant growth in quite some time. It has been steady.

***Are developers required to put in streets?*** The developer is responsible for the initial construction. Once it is completed, the city will take it over for maintenance.

***Have you ever considered using a computerized pavement management system?*** Yeah, we have looked at those. There are a lot of standard packages out there. We just haven't felt a strong need to get into it in that level of detail. Amarillo has traditionally been able to fulfill its needs with the general fund and tax base, etc. I have been here twenty years and it has been true that whole time. We have been able to meet our needs.

***Do you currently have any major projects underway?*** Well, yes. Wal-Mart is building two superstores here. We are doing arterial pavement widening adjacent to those sites. That is an example where we didn't have those streets in the capital budget, but we were able to fund those improvements out of our street and drainage fund with money that we already had. There is also another arterial street that we had programmed for some time. It is major reconstruction and widening. That is more typical of our regular capital program.

***Do you do any projects in conjunction with the county?*** No.

## ABSTRACT

**CITY:** Amarillo  
**OFFICIAL(S)**  
**INTERVIEWED:** John Ward, City Manager  
**DATE/TIME:** July 14,1993/2:00 p.m.

ECONOMIC/ REVENUE	<p>The economic climate is improving significantly. Amarillo is a regional trade center and doesn't rely on other metropolitan areas for their economy. Natural gas and cattle prices have improved, helping the local economy. They have the only nuclear disassembly plant in the U.S. With nuclear disarmament, their work force has grown. With environmental concerns around all industrial facilities, there are more high paying scientific jobs available. A small amount of state funding is used on major arterials and a very small amount of that is in their TIP fund. Their largest source of local revenue is sales tax. Their tax base has declined, but not significantly, and indications are it will be up next year. Amarillo has the lowest debt of any city their size in the country and the lowest tax rate of any city their size in the state.</p>
ISTEA FUNDS	They have received some money for certain types of projects.
RELATION WITH LOCAL MPO	Amarillo is the MPO.
ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND	Road conditions are good overall.
MISC	<p>In the last 50 years, Amarillo has only had 3 city managers. This has led to a lot of stability and long range planning that many cities aren't able to accomplish. Throughout the past, they have concentrated their efforts into streets as opposed to parks, libraries, etc.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Amarillo  
**OFFICIAL(S)**  
**INTERVIEWED:** John Ward, City Manager  
**DATE/TIME:** July 14, 1993/2:00 p.m.

*What do you perceive to be the general economic climate in Amarillo?* Much better than it has been. I would say improving significantly but still not what we would hope to see. But definitely improving.

*To what do you attribute the improvement?* I think there are a lot of reasons why our economy is better. Our economy tends to lag the state economy. When the state economy has declined, ours has remained fairly strong for a while and then we catch up to the state. When the state recovers, our economy lags behind. We have our own independent economy here, though. That accounts for a lot of that. We are more of a regional trade center. We don't rely on Austin or Dallas or Houston or the other major metropolitan areas for our economy. We are the trade center of this region. Natural gas prices have improved some. Cattle prices have improved. So, the regional agricultural economy has gotten a little better. That has helped bring money from outside of Amarillo into Amarillo. The other reason our economy is better is because there are more people working today. Probably a 4 or 5% increase over the last couple of years. That has been related to some of the major industries; they have expanded some. Pantex is our major employer. Are you familiar with Pantex? That is the only nuclear weapons assembly plant in the United States. They are located about ten miles from Amarillo. They are also the only nuclear weapons disassembly plant in the United States. With the nuclear disarmament that has been occurring in the last few years, their work force has grown substantially. Most of those jobs are high-paying jobs. I am sure that you are aware that in the last few years there has been a lot more emphasis placed on environmental concerns around all industrial facilities and in particular Department of Energy facilities. So, there are a lot more high-paying jobs for scientific jobs. That in itself is the reason that our work force has grown. In the last few years they have hired probably five hundred to six hundred people. With an economy like ours, that is enough to act as a boost. That and the prison that has been built in the last few years. We are getting a couple more prisons. One is going to be started this summer. So, our economy has finally improved for a number of reasons.

*Your economy has been on an upward trend for about the last ten years?* No. Our economy has only been on an upward trend in the last couple of years. Ten years ago, it was still on an upward trend. The price of oil dropped substantially back in the 1980's.

Agriculture had a problem. Our economy probably really started downhill in '84 or '85. It went down until about 1990.

*Do you think this trend will continue?* I see us being on a trend that will continue for the next five to ten years. You never know beyond that.

*Do you receive federal or state funds for your roads and bridges?* Well, we have the funding that every other community has, of course, with the ISTEA program...for certain types of projects. There is obviously not a big state or federal handout for roads. I wish that there were. Like a lot of people wish, I'm sure. There's not and there is not going to be. The state district office here tells us that they don't have near enough money to do what they need to do and I am sure that they are right. A small amount of that is used in the city on major arterials. A very, very small amount of that is in our TIP fund.

*What is your largest source of local revenue?* The largest source of local revenue is sales tax.

*Have you experienced a decline in your tax base?* The decline has been over the last five years. It has been 4-5% total. That is not significant. As much as anything, it has just been stagnant or flat. Yeah, there has been probably a 5% decline over the last four or five years. This year we got our certified records. They show that it is down .3% this year which is not much. All indications are that it will be up next year for the first time in four or five years. To what do you attribute this 5% decrease in the tax base? Lowering property values. The real value of property has declined in general. I also attribute it to a decrease in business property. As the economy worsens, retail sales drop. Some businesses close. We didn't have the business and personal property to tax. A furniture store goes out of business and they have a \$2 million inventory. Those kinds of things are small in nature but, they do add up. It is a combination of the two things.

*What is your relationship with your MPO?* We are it.

*How about development in the past five years?* It has been up over the last two or three years. Our recovery really started in '90 or '91. In 1990, we issued the lowest number of single family permits on record in our city over the last fifty years. 1992 was an increase; 1993 was a substantial increase. It has started to turn around. We have seen some new, small industries locate here. We have some expansions besides Pantex--we've had some other expansions. We are starting to see some development. We are seeing more single-family houses being started this year than in the last six or seven. We are starting to see some positive things.

*Do you think you will see any positive affects from NAFTA?* Well, that is hard to say. I think there is an outside chance Amarillo might benefit. It is a real outside chance as far away as we are from Mexico. There is an interesting group in Kansas...throughout the

Midwest....in Nebraska..they have gone in the corridor down through what they call the heartland of Kansas, Oklahoma and Nebraska, down through Texas, all the way to Mexico. Have you heard about that plan? It is an interesting concept. They are pushing for the development of a north/south interstate to run from North Dakota (or wherever it starts in the North) through the Heartland then through Amarillo and right through West Texas into Mexico. Just a direct rail/land interstate/highway system that would connect the central part of the United States with Mexico and Canada. Something like that is pretty remote and farfetched, but unless something like that occurs, I don't see any great benefit to Amarillo.

*What do you consider to be the condition of roads and bridges in Amarillo?* Overall, very good. I think that we would rank very high when compared with most places.

*You mentioned a sealcoat and overlay program that seems to be working very well. Some communities don't seem to be able to meet their maintenance needs.* Amarillo is an oddball community in that regard. We are in much better shape financially than any other city of our size financially. I would like to say that is because I am so smart, but it is really not true. We have the lowest debt of any city of our size in the country. In fact, in 1994 we will be totally debt free---from tax-supported debt. I don't think any other city in the country with population over 100,000 can say that. We have the lowest tax rate for a city of our size in the state....probably in the United States. Yet, financially, we don't have any problems. We have always been very conservative. We don't provide a lot of the frills in city government that most larger communities do. Over the years, that has just postured us to be a whole lot stronger. Back in the early '70's, the federal revenue sharing program was created. That was the last time the federal government had a surplus, and they said let's just dole out the money to the cities. This was just a windfall that the cities had, so a lot of cities went out and hired police officers, fire fighters, built new parks and had to hire people to maintain the parks, built libraries and had to hire more people for the libraries. They did all of these wonderful things with the money. We didn't do that. We repaired streets. We built streets. We put it into public works infrastructure-type projects. That is what we did, plain and simple. That is all we did with revenue sharing. As a result, whenever they cut revenue sharing off, we didn't have to worry about all of the people we had hired, how we were going to pay the salaries of all of those people. So, we had a leg up on those cities. And then also, we began using the Community Development Block Grant funds to do additional street paving projects. We still have some dirt streets in Amarillo. We continue to use those federal funds to pave those streets. We just put our dollars into maintenance. As a result, we are in a position where we have higher quality public works facilities than other cities. They are maintained better and we don't have the financial problems. It is just an odd situation. You won't find that in most cities. That is why we don't have the needs that most communities have in that area. We don't have a big surplus in the budget and we can't run out and do all of the things we would like to do....We would love to build some new parks and libraries. When it comes to street conditions, we rank as high as anybody because of the history of what has transpired. My

predecessor was here twenty years. He loved streets, that is what he liked. He didn't like parks, and he didn't like libraries. He like streets. So, everything he did was streets.

*How long have you been the City Manager?* Ten years. That in itself is pretty unique. We have had three city managers in the last fifty years. My predecessor was here for twenty years and his was here for twenty years. I have been here for ten years. That is pretty unique in today's age for city managers to stick around that long and not be run off or get mad and leave. That has led to a lot of stability and a lot of long-range planning that many cities aren't able to do. We can plan for what we are going to do. Every five-year capital improvement program....we are able to stick to it pretty closely. With things like streets, for example, we can stick to that pretty closely.

*So you don't receive many complaints on streets?* Oh, no. We have our complainers just like every city. We get complaints. When you go through a winter like we went through last winter when we had a lot of freezing rain and snow, you get a lot of freeze/thaw damage to the streets. We had a record number of complaints about potholes. Overall, we don't get a lot of complaints. Most of the complaints that we get are from people who see a pothole this big and want it fixed, it is not that the whole street is falling apart. Those are pretty rare. People here are somewhat spoiled in that regard. They see a pothole and they complain about it. That is fine. We go out and fix it. You drive around in a lot of cities and your whole car falls into a pothole. They don't understand that. It is just a different mentality.

## ABSTRACT

**CITY:** Arlington  
**OFFICIAL(S)**  
**INTERVIEWED:** Mike Hasler, Director of Transportation  
**DATE/TIME:** June 9, 1993/1:00 p.m.

<b>ECONOMIC/ REVENUE</b>	<p>Their economic growth slowed, but it is returning. The city council is fiscally conservative. Arlington's development is not what it used to be because of the S&amp;L situation. They used to require escrow, but now they collect impact fees at the time a building permit is issued. The city is divided into 26 service areas; impact fees go to the area in which they were collected. (Required by Senate Bill 336 to report every 6 months on impact fees)</p>
<b>ISTEA FUNDS</b>	<p>They are redesigning a segment of a strategic regional arterial called South Collins St. to meet state standards to qualify for ISTEA funds. Mr. Hasler states, "ISTEA funds do have the capability of funding some major projects in Arlington." They are competing with cities in the western subregion for funds.</p>
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	<p>The Street Division of the Transportation Department does preventative maintenance which is funded by the general budget. The Capital Improvements Department handles reconstruction through bond sales. Total reconstruction is done by contractors. Roads are in a good to fair condition. Mr. Hasler thinks street conditions will stay the same or decline in the future, but congestion levels will improve. They use "key points" in time when preventative maintenance is most cost effective (every dollar not spent at point x will cost you \$4-5 at point z). These points were developed by APWA.</p>
<b>PAVEMENT MANAGEMENT SYSTEM</b>	<p>There is not currently one in use. They have developed specifications for a system, but have not received the funding through city council. Presently, streets are ranked on an observation or complaint basis. They want a system because the street inventory has grown tremendously since the late 70's; these streets are reaching their design life. They need to know the best way to spend maintenance dollars. One strategy is to do a pilot program using a system in a targeted area of the city to convince city council.</p>
<b>MISC</b>	<p>There are inspectors on site everyday when they are rebuilding a street. They prepare a punch list after a developer puts in a street. The developer is required to fix any deficiencies on the list. There is no inspection or follow-up after a maintenance or reconstruction job is finished. There is significant development in the Cooper St./120 area. Green Oaks has been a priority for a number of years; west of Cooper St. there is not a "good way" to go north and south.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
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**CITY:** Arlington  
**OFFICIAL(S)**  
**INTERVIEWED:** Mike Hasler, Director of Transportation  
**DATE/TIME:** June 9, 1993/1:00 p.m.

Economic growth has slowed considerably from the 1980's. Arlington was then one of the fastest growing cities. The city is on its way back up....although it will never reach the level of growth it had in the late 70's and early to mid-80's. Arlington hasn't been hurting as much lately as some other cities because it (City Council) has avoided fiscal fiascoes by being fiscally conservative. City council saw the downturn coming. I attribute our condition to city specific conditions. Development is not what it once was mainly because of the banking/S&L situation.

(Referring to the map) The red lines are going to be your freeways. We have many yellow lines on there, they are called strategic regional arterials like Spur 303, North Collins, South Cooper. Then you get down into...and those are usually state....like FM 157. When you get into the green and black and blue lines, those are going to be city streets and these are primarily financed through general obligation bonds. And, those bonds are all local. The city sells those. So, that's how we do roadways. Now there are some times when a short segment of those green and blue lines may get built by a developer, but primarily it comes from the city. As far as state and federal sources....There is legislation called ISTEA (the Intermodal Surface Transportation Efficiency Act). That was new legislation that was intended to stimulate the economy and help build roadways, but it is not just money for roadways: it is for transit areas and some other things..but your question is more to roads and bridges. But we can receive federal dollars for some projects. I will give you a specific example: there is a section of south Collins St., we (the city) have just been finishing from I20 down to Green Oaks, right next to our airport. The next section of Collins is just being redesigned to meet state standards to qualify for ISTEA funding. I don't foresee in the near future that state or federal funding will be 50/50. I think it will always primarily be bond funds. But these ISTEA funds do have the capability of funding some major projects in Arlington. What happens is we compete with all of the other cities in the western subregion: Bedford, Ft. Worth. We are competing with other cities within the western subregion for these ISTEA monies. All of these other cities also have projects which may qualify. It depends upon whether it is congestion mitigation, air quality... ISTEA funding has the possibility of funding some of our streets. There is also another funding source. I classify it as local because it is more like a development revenue. It is called "impact fees." We used to require escrow and if



you developed a tract of land that was adjacent to one of these streets, you paid a share of those roadways based on frontage. I don't know all of the history: why the impact fee legislation came about when it did, how it did, why it did, etc. But now we have gotten away from charging people simply based upon the geographic location, size, or shape of their property. The concept of impact fees is really very basic. It is the more demand you put on the roadway, the more you pay. A 100,000 sq. ft. Target store is going to pay more money than a 10,000 sq. ft. cleaners, because Target's or Sam's or.... create a lot more car traffic. The mechanism to get that simple concept into being is fairly complicated. It is pretty involved. We do collect impact fees at the time that a building permit is issued. Those impact fees can be pooled within certain areas, called service areas within the city. There are twenty six of them in Arlington. And the same capital improvements department that designs and builds Collins St., they also collect these impact fees. They can take the impact fees in one area and help pay for the cost of the design and construction of the roadway in that area. This is not going to be a significant revenue source, but we have probably collected \$4-5 million. I don't happen to have the latest draft of that document. We are required, by law, to put out a report every six months. The report goes into the impact fee revenues...where we collected monies...where we spent them. With 26 service areas, it can be pretty confusing.

*Is that a fee that is typical with other Texas cities?* I am going to say yes because with Senate Bill 336 (enabling legislation for impact fees), cities cannot charge escrow anymore like we used to. If they charge development fees, they have to be in the form of impact fees. Again, the impact fee is the more demand you create, the more you get to pay. Other cities that were probably similar in nature to Arlington, charging escrow and other development fees, by law have to charge impact fees. Cities can vote to not collect any fees at all. They don't have to collect a fee but the law says if you do exact development fees, it shall be in the form of an impact fee. I'm going to say yes, that is real common.

*How about sales tax, property tax? Is any of that tax allocated to traffic and transportation?* Not directly. We don't, for example, collect a 1/2 cent sales tax to be used for signal improvement. I will have to defer that to Jack Eastwood. Jack will be able to answer that. The bonds that I mentioned before that still pay the lion's share of roadway improvements, those bonds are retired through tax revenues...property tax, I assume sales tax... That is the answer I don't have for you. Those bonds are financed through taxes, that is how they are paid. And those pay for roadways, so indirectly they do.

*How do you allocate funds between maintenance and reconstruction?* That is a two-in-one kind of question. Maintenance is paid for through the budget, primarily. I know it sounds like I am giving you a definite maybe, but I will clear that up in a second. We have, within Transportation, a street division, and it does all of the preventative maintenance: chip seals, slurry seals, fog seals, microsurfacing, crack sealing. All of those kinds of operations are done through the street division. The street division is funded through the general fund budget. The budget manual will tell you the street division

budget. It is right at \$3 million. \$650,000 - \$1 million is for maintenance. So, street preventative maintenance is financed through property and sales tax because it is all paid for out of the general fund. When I said primarily, that was because there is also another form of maintenance: street rebuild. Again, I am talking strictly about roadways. Through the capital improvements department, we have an annual street rebuild list. Streets actually get beyond our capability to maintain them through preventative maintenance techniques if it is totally a structural failure of the roadway. We provide input to capital improvements and they coordinate with other utilities: water and sewer. They go out and rate or prioritize the streets. We have more streets that need attention than we have money. In past bond elections and sales, we have always had money in there for street rebuild, somewhere around \$1 million a year. It fluctuates. They will actually go out, rip out the existing street, take it down to bare dirt, lime it and put down a brand new street. Capital improvements is handled through bonds because we design our streets to last, on average, twenty years. Well, that just happens to be the life of the bond, twenty years. So that is considered a capital improvement rather than preventative maintenance. We don't sell bonds for preventative maintenance, but we do for total reconstruction because the expectation is that the streets would then last another twenty years, until they need to be rebuilt again. Now, in reality, some streets may last ten years, others may last thirty of forty years. It just depends on soil conditions and a lot of things.

*Are you currently using a pavement management system?* No, but not for a lack of trying. We have developed specifications for a pavement management system for Arlington. But, the funding is the part that we have yet to secure through the council. Right now we rank on an observation or a complaint basis. I don't want to make it sound like a real casual kind of thing because our people are out on the streets each day and they generally have a real good knowledge of what is out there. My point is that if we had a comprehensive pavement management system, we would know which are our worst streets because they would all be ranked relative to one another. Right now, there is human judgment involved. I may go out and look at a street and say, "Gosh, this thing needs to be rebuilt." Two blocks away there may be one that is worse. If I don't drive over there, I don't know. I think we have, generally, a good handle on street conditions. We think we need a pavement management system because Arlington has gotten so big and our infrastructure... there is a significant number of lane miles built in the late 70's- early 80's. That doesn't seem like such a long time ago, but when you think that this is 1993 and streets are supposed to average a 20 year life, there is going to be a whole lot of streets that are going to reach the end of their design life in the next five to six years. Our concern is how do we know where best to put maintenance dollars. The pavement management system not only tells us where but how to get the most bang for the dollar that we do spend. One of the things that we have tried to budget, and it just hasn't made it because it is an expensive item to fund, is a pavement management program. One of the strategies that we may try in the next year or two is maybe do a pilot program in a targeted area of the city. Maybe even defer allocated street maintenance dollars to fund this pilot program. Maybe we can even do it small enough so that we won't have a significant impact on the

maintenance program. And this might show the council that this is a good program and that it can work if done on a city-wide basis. We will be able to say, "Here is how it works, here are the things to look out for, etc." Because at the moment I cannot sit there and tell the council with 100% certainty that we are rebuilding the worst streets and maintaining the streets with optimal use of our dollars. I believe that we are, but you can't ever be 100% sure.

***How expensive would a pavement management system be?*** The estimates I have been given are \$250,000- 300,000 for the first year and \$40-50,000 each year thereafter to maintain. It would take somebody to do that. One of the things that I have made real plain to the City Manager's office is that it is not a one shot deal. It is expensive to get started and get your inventory up and running, but it also takes maintenance of that system. But the good thing about it is that it can tell you: if you want to spend \$1 million a year on your streets here is the best way to spend that million dollars. Or, you can tell it that you want to maintain all of your streets in a good condition, not fair and not very good, and it will tell you that you need to spend \$3 million a year on street maintenance. I wish that we had one.

***Are there any quality checks for maintenance and reconstruction?*** If a road is rebuilt, there is an inspector on site every day so that we know what kind of subgrade we are getting, we know what kind of asphalt and the density and the temperature it was put down at. We know whether it was tacked or not before the next lift was put on. So there are those kind of checks during construction. There is a one-year maintenance bond that we require of street contractors. When that street is finished, we have a final inspection with an inspector and/or a senior inspector, someone who is a little more experienced. We walk through the job with the contractor and say well, you need to fix this or take care of that. We develop a deficiency list or a punch list. When that punch list is finished, we accept the project for a one year maintenance period. There is a one year maintenance bond that the contractor submits as part of his contract. Supposedly, at the end of the year there is another walk through inspection that is done. Anything that is related to materials or workmanship...it can't be a fuel spill that has just vaporized the asphalt in one spot. We don't hold the contractor responsible for that because that is beyond his control. But if there is a subgrade failure or it is obvious that the concrete has started to go beyond normal cracking, we go back and tell the contractor that before the city takes that over for permanent maintenance you have to fix this punch list worth of items. On the preventative maintenance measures, we have a crew that goes out to crack seal with a foreman on that job, an assistant superintendent and the street superintendent. The street superintendent really doesn't get out on a routine basis to say, "Well, that doesn't look good..." It is usually the assistant street superintendent or foreman who actually makes sure the crack sealing is done correctly. No, we don't go back to check the crack sealing or microsurfacing at six month intervals. Checks are just on site. There is no follow-up unless we get a complaint.

*Are the total reconstruction projects all contracted out?* Yes. We don't have the in-house capability to do that. Those are all done by independent contractors under a two-way contract between us and them. There is also the development side of that. Developers hire engineers to design their roadways for a subdivision for them. They are also built under a contract with the city. There is a three-way contract between the developer, his contractor, and the city. The city is a party to that because we do the same inspection. We will inspect a subdivision street just like we inspect a city street. We have the same guys do that; the same specifications are called for so that there is no difference in quality between what is built by a developer. Same maintenance period. They go out and do a punch list and go through that whole process with development streets too. Again, there are streets provided by city bonds and by developers.

*What about traffic pattern and traffic mix?* In localized areas of the city there have been significant changes. For example, go back to the thoroughfare plan and look at Cooper Street in the south area of town. There has been significant development in the Cooper/I20 area. Cooper Street has been widened by the state from 303 down to I20 and is now being reconstructed all the way down to the south city limits. It has been widened to seven lanes, and we have followed through with a traffic light synchronization grant. Basically, we have gotten a grant funded through oil overcharge funds where we go out and do some detailed signal progression analysis so that you can use your streets in an optimum fashion. More times you stop a car, the less efficient a roadway is in terms of carrying traffic. We have gotten Cooper Street to where it is seven lanes and carrying, in the I20 area, 65-70,000 vehicles a day. Three years ago, it wasn't doing that. But, in a way, it is a self-defeating process because the more efficient you make a roadway, the more people tend to use it. This means that we have promoted people changing their driving habits because people use the path of least resistance. I do. When I am ready to go home, I want to get there the quickest way I can. I drive down Cooper Street along with 65-70,000 other people. Yes, I would say the traffic patterns have changed considerably in certain localized corridors where there have actually been some improvements made. When Bowen road is built between I20 and 303, I think that will have a significant impact on Cooper Street because you can't get there from here right now. Consider people like me who live out in southwest Arlington. When I want to get here to City Hall, I go I20 up Cooper. If Bowen were there, and of course once Green Oaks gets in (and that is under contract now), there are some alternative ways for people to go. I believe you are going to see a change again in Cooper Street where people, once they have alternative ways, will use that. They will follow the path of least resistance. Why do I need to fight 65,000 cars a day on Cooper when I can drive Bowen and face 20,000? The other thing that I think you are going to see is out at Ranger stadium. Because of the new ballpark and the way the Rangers, the stadium authority, and the city have viewed this new project, roadways are going to be reconstructed in that area around the new ballpark, but they are going to be closed before, during, and after each game. Major roadways like Stadium Drive and Randoll Mill are going to be closed a couple of hours before each game. The reason being that the Rangers are trying to promote a pedestrian friendly environment. What that really

says is..... between the ballpark and the riverwalk retail area, there are going to be an amphitheater, little league park, museums...there are going to be other things for people to do than just to drive to a ball game, look at a ball game, and then just go home. What they are wanting to do is have people get there at 2:00 p.m. on the afternoon of a ball game and go out and look at Festival Retail and go shopping, take their kids to the amphitheater to a concert, go to the ball game, and then maybe go back to Festival Retail. We are talking about several thousand cars a day that would do that. So, we are doing this with all intent and knowledge; we want this thing to work. It is a big change in philosophy because right now we cater to the automobile. Texans are in love with their automobile; we don't carpool. When I want to go someplace, I get in my car and go. And so this is going to be a change for people to walk and park their car one time in some parking lot and walk all over and then walk back to their car instead of driving all over. Of course we have some grand plans for that area that include more than just a ballpark. The hope is that in ten or fifteen years there are going to be a lot more things to do in that area. Besides the Rangers, you have Six Flags right next door, Wet & Wild right on the other side of I30, and Six Flags Mall. There are a lot of things to do in a small area of town. I really would feel remiss if I didn't mention Green Oaks. When you think of Arlington and traffic and roads being built, Green Oaks has been one of the highest priority projects for City Council and the city for a number of years. We are finally seeing the light at the end of the tunnel. All but one section of Green Oaks Boulevard (and there are 22 miles of Green Oaks) has been completed. Green Oaks starts in northeast Arlington at 360; it basically makes an entire loop around the city and comes back to meet 360 down in far southeast Arlington and then 360 completes the loop. There is one section from I30 to Fielder Rd. that has yet to go under contract for construction. There has been some preliminary work done. There are some environmental issues involved that I won't go into. I think when you see this section of Green Oaks completed.....right now what is under contract is from Collins to Matlock. This (points to map) is the last section. That will complete the loop. Again, Green Oaks....if you look at the way Arlington is right now, basically west of Cooper Street, there is not a good way to get north and south. When this section of Green Oaks is tied into Meadowbrook and in particular this East Chase connection to I30, I think you are really going to see a lot of traffic on this westerly part of the loop. So yes, I think that people, like me, who are now being forced to go up Cooper Street are going to be able to get on Green Oaks Boulevard and come up to either 303 or Highway 80 or even get to I30 without winding around on other streets. They are just going to get there and go. These are nearing completion right now. They were hanging beams on the 303 railroad bridge the last couple of weeks. We project 55-60,000 cars a day on some stretches of Green Oak. The only roadway that has that kind of volume right now is Cooper Street. West of Cooper Street it is hard to go north and south because there is not any continuous road. Ultimately, the map shows some roadways going into the mid-cities area. Right now the only way to get there is either 820, North Collins, or 360. So, you will have this way to get around Green Oaks once this connection

is ultimately made. We don't have any plans to do this in the near future, but it is on the thoroughfare plan.

***What about road conditions?*** Good to fair condition. I know that good to fair is relative. Good compared to what? But in terms of rating streets, you can have very poor, poor, fair, good, very good, and excellent. What I am telling you is that we are probably right in the middle. We have voiced concerns to council that unless you continue to fund preventative maintenance, as years go by street condition is going to start to deteriorate faster and faster. It is not a linear function. In a twenty year design life, you don't lose 5% each year. It stays relatively flat for five to seven years and then it nose dives. There are key points in time for preventative maintenance. The American Public Works Association has done a lot of research to tell us when the key points generally occur. For every dollar that you don't spend at point x, you are going to spend four to five dollars at point y, or \$35 dollars at z. It is a geometric relationship. Right now we are probably still in the good to fair condition because Arlington streets are still fairly new. We have good soil conditions in the west side of town. The southeast is where you really start having some bad soil, and this is where we have yet to develop. So, ask me five years from now and the answer may be totally different. I did send this question to the street superintendent.

***Have there been any major projects undertaken recently?*** I sent this question down to capital improvements. When you see the roadway being built, this is the icing on the cake. There is a whole bunch of things that have to happen before that pavement goes down: drainage improvements, water and sewer, gas, electric, telephone, telecable, right-of-way to be bought, design, environmental studies, permits. There is just a whole slew of things. Green Oaks is definitely one of the major projects going on. There are two different contracts going on right now with a third to follow very shortly. Another one of the more major projects is not being done by us but by the state: 303 from Fielder to 360. If you ask anybody in town which project has inconvenienced them most, they will say 303. There are a lot of businesses on 303. It happened to be a very difficult project because there is a lot of drainage involved. It went from converting a four lane farm to market facility to a six lane boulevard. It is just a big project. It cuts Arlington in half. The state did it in two phases. They are actually going from Fielder Road, a good approximation of the center of town, to 360. The other phase is from here all the way to 820. There are some other problems on this. We are probably at least a year away from completion. That is primarily funded by the state department of transportation. We pay a share of that...but I'm not sure what the exact percentage is. South Cooper Street, south to the city limits is substantially completed. That is also widening from a two lane FM road to what will be a seven lane section. Part of it will be striped for five lanes because the traffic volume isn't there. In terms of economies of scale, it was much easier to build seven lanes instead of five now and two later. I think there will be some striping out of some lanes as you get

farther south and the volumes decrease. Another state project is South 360. There are two or three phases of this street that go down to the edge of the map. 360 and 287 come together. Between here and here is three phases. The first phase has just gotten underway. The second phase has just been delayed to 1996 with the third phase in 1997 or 1998. This is also a significant project in terms of opening up southeast Arlington. Right now, what is out there is called Watson Road, a two lane county road that had not nearly the capacity that was needed.

*Do you see street conditions improving in the future?* I think as we continue to build our thoroughfare plan, congestion levels will improve. As far as street conditions, I see that as staying the same or decreasing.

## ABSTRACT

**CITY:** Austin  
**OFFICIAL(S)**  
**INTERVIEWED:** J. C. Woods, Jr., P.E., Street and Bridge Division  
 Vance Rodgers, Street and Bridge Division  
**DATE/TIME:** June 2, 1993/11:00 a.m.

<b>ECONOMIC/ REVENUE</b>	There are three sources of local revenue: transportation fee, capital transit, and Capital Improvement Program. The transportation fee replaced the property tax. State and federal funding is almost nonexistent. The Public Transportation Mobility Fund is used for the bus system, Capital Transit. Each year \$1 million of this fund goes to the Street and Bridge Division. Approximately \$5 million was allocated to the division for street repair which covered 45 lane miles. There are approximately 900 lane miles left that need repair.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	Arterial and bus route streets are evaluated each year; all other streets are evaluated every 3 years. There are 2,415 lane miles in a poor or failed state; this is 48% of the total lane miles in Austin. The estimated cost of repairing these streets is \$237 million. Their priority is preventative maintenance, with the intention of avoiding the addition of more lane miles to the failed category.
<b>SURVEY</b>	The Street and Bridge Division surveys 14 metropolitan cities in Texas every year. These surveys are used as a reference and a "benchmark" for Austin.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	They are currently in transition from a manual to a computer system for evaluating streets. They use the cost/benefit analysis of the pavement management system to allocate funds for maintenance and reconstruction.
<b>MISC</b>	Mr. Woods states that there is no constituency for streets. Citizens do not pressure city council until the street condition has reached a failed state. A Total Quality Management program was instituted in July 1991. The division was divided into functional teams. The program provides for scheduling, coordination, and a measurement of standards to ensure each team performs its job correctly. They haven't had harsh winters for the past three years which has kept some streets from collapsing. The Planning and Development Department conducts annexation. Street conditions are not considered when an area is being considered for annexation. From 1980 to 1985, street inventory increased 42% due to annexation without any increase in funding for street maintenance.



**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Austin  
**OFFICIAL(S)**  
**INTERVIEWED:** J. C. Woods, Jr., P. E., Street and Bridge Division  
Vance Rodgers, Street and Bridge Division  
**DATE/TIME:** 2 June 1993/11:00 a.m.

**THIS IS NOT TRANSCRIBED FROM A TAPE RECORDING**

**REVENUE SOURCES**

There are three main sources of local revenue: transportation fee, capital transit, and Capital Improvement Program (CIP). State and federal funding is almost nonexistent. The transportation fee is included in the utility bill. As of July 1992, this source replaced the property tax. Capital Transit receives revenue from a Public Transportation Mobility Fund; this tax is authorized to be up to 1¢ but is presently set at  $\frac{3}{4}$ ¢. Capital Transit allocates \$1 million of this revenue annually to the Street and Bridge Division for street maintenance. Capital Transit is not legally obligated to provide funds to the Street and Bridge Division. There has been a disagreement over whether Capital Transit should allocate a portion of their funds to the Street and Bridge Division for bus route street maintenance. Street and Bridge is currently trying to get a ten year funding commitment from metro to repair streets. The CIP is revenue obtained through the sale of bonds for major repairs or construction (not maintenance). It can be used for projects such as changing a two lane highway to a four lane highway.

**ALLOCATION OF REVENUE**

Austin is currently in a transition from a manual system of street and bridge evaluation to a computer system. Arterial and bus route highways are evaluated annually, and all other streets are evaluated every three years. The evaluation of streets and bridges is necessary for determining the allocation of revenue between maintenance and construction/reconstruction. The manual system categorizes streets on a scale of A (excellent) to F (failed). This rating is familiar to city officials. The Pavement Management System (PMS) is a computer system which categorizes streets by a Pavement

Quality Index (PQI). Streets are segmented based on characteristics such as width, age, and surface type. When characteristics change, the segments change (this is typically three to four blocks). PQI is a numerical rating derived from the evaluation of fifty nine fields of data for each street segment. This numerical rating is matched to the old scale of A to F due to familiarity.

The PMS performs a cost/benefit analysis to determine the most effective allocation of funds for street and bridge maintenance and reconstruction. The system can predict long term results of the specific use of resources and ranks the uses in terms of their effectiveness. This computer evaluation is time efficient by producing "instant" data which facilitates the political process of obtaining funds and the authorization of proposed maintenance and reconstruction schedules.

## RESOURCE TRENDS

Mr. Woods states that there is "no constituency for streets, they are just supposed to happen." He said that citizens do not pressure city council to maintain streets until they have reached a failed state. In spite of this, he sees no way that funds can continue to decline because the Austin street problems are bad enough that citizens will begin to demand improvements through increased funding.

## TRANSPORTATION (METRO BUS)

Transit Route System (TRS) came into existence in 1986. When the TRS came into existence, Austin's infrastructure was not ready for the increased stress upon the roads provided by the bus system. Buses do more damage to roads than any other vehicle type due to the heavy load transported on a single rear axle.

As previously stated, Austin has a Public Transportation Mobility Fund (PTMF) which is authorized up to 1¢, but is currently at ¾¢, providing \$1 million for streets annually over the past two or three years. This year, in 1992/93, the Street and Bridge Division received \$5 million for the repair of forty five lane miles of bus route streets. There are approximately nine hundred lane miles left.

## TRAFFIC PATTERN/MIX

Trucks/trailers and buses cause the most stress because the damage is an exponential function: if the weight of the axle increases by one pound, the damages are multiplied by a factor of sixteen.

## TOTAL QUALITY MANAGEMENT (TQM)

The Street and Bridge Division initiated a TQM program in July 1991. The division was divided into seven functional teams such as overlay and sealcoat. Each team has a mission statement and their photograph posted in the main office of the division. All of the teams work together to perform rehabilitation projects. These projects are given a Project Quality Index (PQI). This numerical PQI is also posted in the main office and represents how well each team "passes a baton" from one team to the next. It provides scheduling and coordination. It coordinates requirements for each team and provides a measurement of standards to ensure that each team does its job.

## PAVEMENT CONDITIONS

Currently (in 1993), 1816 lane miles are in the D category, and 599 lane miles are in the F category for a total of 2415 lane miles that are in a poor or failed state. This constitutes 48% of the total lane miles in Austin. Estimated cost of repairing/reconstructing these streets is \$237 million, but there is only enough funding to work on eighteen lane miles of rehabilitation, overlay sixty lane miles, and sealcoat three hundred lane miles. Mr. Woods said that it costs as much as \$400,000 per lane mile to repair a D or F street. It costs \$98,000 per lane mile for rehabilitation projects, \$5,000 for sealcoats, and \$23,000 for overlays. He also said that if sealcoats and overlays were done when needed, the rehabilitation projects could be prevented.

There is such a large backlog of failed roads that they try to get or use money for preventative maintenance on other roads instead of using it for reconstruction. Politicians don't like this. They don't understand why it is more profitable to maintain usable roads than it is to repair failed roads.

## WEATHER

Austin has not experienced a harsh winter (freezing and precipitation) for the past three years. This has kept the streets from collapsing. A harsh winter could destroy vulnerable streets. Vance Rodgers said that he has worked for the Street and Bridge Division for the past sixteen and a half years. During this time, they received emergency funding only once in 1985 after bad weather. The amount received (\$1.2 million) only "patched" a few streets that were damaged. If severe weather hit, streets would have to be closed unless emergency funding was received.

## ANNEXATION

The Planning and Development Department conducts annexations for Austin. The city looks for divisions to annex that have the highest tax potential, but it does not take into consideration the cost associated with repairing/maintaining those roads. Annexation does

not include any funding for transportation (street and bridges). From 1980 to 1985, there was a boom in subdivisions which caused the street inventory to increase by 42%. It was estimated that 72% of these streets were substandard. In 1982, funding for street maintenance was \$2.9 million; and in 1991, it was \$2.8 million. The increase in inventory along with the decrease in funding was a contributing factor to the deterioration of streets. When the bust happened, street funding was cut first because politicians did not see any immediate effects of this funding cut. There is currently a proposal for new annexation over the next five years: \$600,00 is needed to maintain streets, but street and bridge will only get \$200,000 from the city. So, they are \$400,000 in the hole to start with. The new annexation proposal also includes \$3.8 million of repair of substandard streets without any funding source. Therefore, the Street and Bridge Division is out \$4.4 million to begin with. In addition, in 1986, the Transit Route System destroyed an additional 1,000 lane miles which required \$34.4 million just to get them up to a status where they could be maintained.

#### MISCELLANEOUS

Mr. Woods would like to see the Street and Bridge Division at least partially funded by a gasoline sales tax. He stated that users would pay for their use. For this to happen, enabling legislation would have to be passed.

The Street and Bridge Division conducts a survey of 14 metropolitan Texas cities each year. The surveys are mailed out in April/May. For reference, an example of the survey is in the Austin interview file. Mr. Woods said that he uses these surveys as a "benchmark" for comparison.

## ABSTRACT

**CITY:** Beaumont  
**OFFICIAL(S)**  
**INTERVIEWED:** Ray Riley, City Manager  
**DATE/TIME:** July 22, 1993/8:30 a.m.

<p>ECONOMIC/ REVENUE</p>	<p>The economic climate seems to have relaxed. Beaumont suffered first in the state when the recession hit, but it seems that they began to come back earlier than the rest of the state. They expect new jobs to be created by the new correctional facilities. Their tax base has been fairly steady. They have nine industrial contracts with plants outside the city limits. These plants make a contribution in lieu of taxes. New construction is done through general rehabilitating and reconstruction. There are not funds for that -- they have to come from some outside source like bond sales. In 1980, through bond sales and general fund money, they came up with a \$6.5 million program for reconditioning, resurfacing, and reconstruction of streets. This helped them to improve conditions, but they continue to drop behind, and the problem gets worse. About 3 years ago, they created the street user fee. It is a \$3/month fee that is included on their monthly bill for services. This creates revenue of about \$1.5 million/year. About half of that is spent on debt services for those bonds. Funding for maintenance</p>
<p>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</p>	<p>Road conditions are fair to marginal. They have improved conditions substantially over where they were 5 years ago due to the \$6.5 million program.</p>
<p>MISC</p>	<p>Mr. Riley feels that they are in worse shape on the Gulf Coast because of the heavy rainfall.</p> <p>There has been a change in traffic patterns due to the large amount of reconstruction being done to I10. Detours put a large amount of stress on some of the city's streets.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Beaumont  
**OFFICIAL(S)**  
**INTERVIEWED:** Ray Riley, City Manager  
**DATE/TIME:** July 22,1993/8:30 a.m.

Just to give you a little bit of background -- The changing of the resources that are available to Texas cities...we'll just talk about Beaumont, but I think it's probably that way for most of the cities, is that your tax base, or where you have the available resources to deal with things like street maintenance is in competition with all of your other operations. Right now I think that you'll find in most budgets that public safety is going to take up over 50% of your available resources just to deal with current operation. Parks and recreation make up the difference. So when you really get down to street maintenance, there is not enough resources in there except perhaps to patch and repair to take care of the day to day problems. Going back to ten years ago, the problems of available resources more than likely...the city of Beaumont used general revenue sharing, which was a grant from the Feds, for most of its street maintenance. We received about \$1,600,000 or \$1,800,000 over those years and the majority of it went into street rehab as opposed to patching. The streets were in such bad condition from just absolutely no way to get ahead of or be able to reconstruct or rehabilitate what are really substandard streets to begin with. In other words, no curb and gutter, ditches on the side, and there's a good part of your community where streets have been built up with substandard base and more than likely a double seal surface. That's what you've been dealing with. That's what you've been patching and repairing. When you get to the point where you can finally come in and do a little bit of rehabilitation, put in a proper base and 1.5 to 2 inches of asphalt on top of it is probably in the long run more cost beneficial but to get the money to do that, to step out in front of it, is very, very difficult. So over the years those kinds of programs have come from some other kind of sources other than general revenues. Somewhere, the new construction where you are actually building thoroughfares or rebuilding existing capital improvements to where your are really doing a major project, you're going to do that through general obligation debt. You're going to issue bonds and, generally, we can keep up with that. Now, all of us have more desires than what we need. But as far as keeping up with what the community actually thinks about, we're probably doing that. But we could spend another \$20 to 25 million right now.....we could put together our wish list for the construction of new streets to where it is unlimited. We really don't have the capacity to issue additional property taxes to pay for that service. So we are rather limited right now. I mean we can keep up but we are marginal with what our needs are for major construction. So that leaves then that little part for what I was just talking about and that

are those streets reconditioning, rehabilitating, and keeping up with these streets. That is the big problem, and there are not any funds to do that. We are constantly fighting with not only residential, but you've got a lot of minor arterials, and a lot of collector streets out there that are substandard and continue to deteriorate. What we've done here is that about three years ago, we came up and created a different source of revenue called the street user fee. It is based on the assumption that everybody uses streets and we don't have property taxes so we levy a surcharge or a tax against every residential user of \$3 a month. We put it on our monthly bill for services which includes sewer, water, and sanitation, and our \$3 street user fee. We also bill apartment units on the basis of \$2/unit and the apartment complexes pay that. All businesses, all customers that we have of the water system will pay that \$3. If you've got a meter out here and you're running a small commercial real estate office you'll pay us the \$3. That gives us about \$1.5 million per year. We sold certificates of obligation, or general debt in the amount of \$5 million in 1980 and then put out of the general fund about another \$1½ million.....we came up with a \$6½ million program that we applied to the reconditioning, resurfacing, and reconstruction of the substandard streets. Out of that annual revenue of \$1½ million we spend about half of it to pay for the debt service on those bonds. That leaves us about \$750,000 to apply to new projects. We could spend easily \$3 million dollars a year on that program and never catch up. And what are we doing? Just sitting here thinking about it because there are no other resources. We can't take it out of the general fund, we can't issue bond for something that the life of it.....I mean, we did but we're paying those bonds off on a very short term. They're not fifteen, but about seven years and the premise is that at least those streets will last as long as the debt we're paying on them. But it has been a problem for a long time, we continue to drop behind, and the problem just gets worse. We have no prospects from any....property taxes, or from any of the major sources of revenue that we have which is sales tax, property tax, our industrial payments. There are no general revenues that can be made available to really get ahead of the problem or even to catch up. So every year we're going to continue to fall behind. And it's just a matter of what degree or what percentage or what rate do you think you're falling behind. I think that here on the gulf coast that we're in worse shape than a lot of places because with the heavy rainfall that we get, the shifting.....we'll have a lot of rain and then we'll have a long time when we don't have any water at all, and we have a lot of movement, so it just seems like the conditions of the streets can change overnight. When you think you've got a good street, then all of a sudden you can have a base failure and it all just goes to hell in a hand basket. We've been laboring this for ten years. We don't have the answer. In some states they might use a portion of the gasoline tax that is collected by the state that is designated for street maintenance. But the way the circumstances are currently going, I don't see a change in the trend. As our revenue sources shrink or, in other words, your rate of revenues are not going to increase anymore than what your current cost of operations are. In the general fund, if you can get a 2% to 4% increase in revenues, you're doing very, very well. And probably our cost of business is about the same. So to be able to come up with any substantial money is not going to come out of your operating revenues, it's got to come out from some additional source. We are rather pleased that we

use the street user fee. We've had several other communities that have asked about it. We're not necessarily pleased...we actually went through a referendum initiative where it was challenged as to whether or not we could do it. Of course, the council imposed, as they did several other fees back in 1980. After the election, the city voted to retain it. It was done in option to raising property taxes. So for us to have raised that to the equivalent of \$1.5 million, it would have been about a 5¢ increase in property taxes. That just was not acceptable. So, that's where we are.

*What do you perceive to be the general economic climate in Beaumont?* Right now it seems to have relaxed. Over the years, we suffered first in the state when the recession hit because of cutbacks in the local refining industry. Back in 1985 or 1986, we commenced our decline earlier than the rest of the state and just about the time we leveled off, the state recession hit and we hit another dip. It seems as if we began to come back earlier than the rest of the state, however. All the indicators were by 1989, 1990 we were coming back. 1991 was a particularly good year for us. In 1992 it seems as if .....or in early 1993 we have leveled off. Probably, it is due to the completion of the construction. We've lost the construction jobs and there's been some other layoffs. We're rather flat right now by comparison to where we were in 1991. Indicators are from sales tax and other things that we are just about level with where we were in 1991. I think that we can anticipate though that it is going to pick back up. The additional jobs that will be created by all of the correctional facilities. That is going to be the major factor for change. Also the location of the...or the construction of the federal correctional facility -- that is going to help. So right now our rate is continuing to go up. I think that we are in a small trough currently, and I expect it to come back up in 1993. So, overall, I'd say that we've done very, very well in the last three years. Right now we're sitting here on a plateau, but I think it will pick back up as a result of some construction. Permanent jobs will be created through the correctional facilities.

*Has Beaumont experienced a declining tax base?* No, as a matter of fact, our tax base is rather steady. Of course through the reappraisal.....it is actually improving. But our tax base is not declining. The last couple of years we've actually had some modest construction through local industries or commercial interests that have received tax abatement. That's not a reduction in taxes but the fact that they've had forgiveness on the formula for the first five years. We think that in a couple of years that will be coming back on. It's not going to be a major change. Our tax base is not going to increase substantially at all. We have a major portion of this contribution to our.....we're a little bit different than most communities in that we have nine industrial contracts with plants that are located outside the city limits. They do not pay taxes to us, but they make a contribution in lieu of taxes through a contract. Mobil, Dupont, GoodYear, and a number of other plants that are located outside of our city limits that have a very high assessed valuation pay us what will be this year, about 7.2 million. That's almost 75% of what would be our property tax income in the general fund. Or stated another way, they're paying us about 75% of what they would have if they were located within the city limits.



So, that to us is really very, very important because it is a very substantial amount of our income. As the employment of these plants fluctuate and/or the construction that they have...Mobil had a major construction program that was pretty close to \$300 million that were added to the plant. And while they're not paying taxes on it now, within five years of the completion of it will come on. That will have a substantial benefit to the county as well as to the city through its relationship with industrial contracts.

***How is the allocation of funds between routine maintenance and reconstruction determined?*** Well, there's none for reconstruction. It is only for routine maintenance, and it is just funds that you have left over. After you take care of police and fire protection, it is how much so we have to apply to just patching. The reconditioning and reconstruction right now is just...say we have about \$750,000, which is a very, very modest amount, we've spent...see during the past four years in addition to that \$6.5 million we've invested another \$750,000 a year. Probably by the end of 1993, we will have put very close to \$9 million into this reconstruction/rehabilitation of streets. We could be spending easily between \$2 million and \$3 million a year and never catch up.

***Have you experienced a substantial change in traffic patterns over the last few years?*** Yes and no. Our city has not expanded. It tends to all be done within the present city limits. We haven't built any new streets where we're actually cutting new ground. We're rebuilding and reconstructing older or existing streets or trying to expand them. The state has probably done more....if we've had any change in traffic patterns, its been due to reconstruction of the interstate. Realignment has been going on for some time and other kinds of projects to where people have been shifted throughout the community and we will continue to see a shift, I believe, as a result of new construction. The MLK corridor is coming in. Right now it is forcing what had been a good deal of traffic on related streets as a result of having to close those streets. We have got people who are continually moving both on the east side of the community, the south side, as well as the west that are just trying to get there from here. It has been in a state of flux for several years.

***Do you receive any funding from the bus system for maintenance of the streets on the bus routes?*** No, remember that it is run by the city. It is subsidized by the federal government. The income from the fare box pays for about 1/3 of the cost of operations. The deficit is made up by the federal government. They will pay up to 1/2 of their operating costs and then the city makes up the difference. This money comes from the general fund.

***What is your general impression of overall road conditions in Beaumont?*** Fair, marginal. In other words, I think that we've improved it substantially over where it was five years ago. That has to do with this major program that we have and some other capital improvements. But, I would say that we have improvements over the last five years and right now, it is marginally satisfactory.

For additional information contact: Tom Warner, Director of Public Works

## ABSTRACT

**CITY:** Brownsville  
**OFFICIAL(S)**  
**INTERVIEWED:** Lamberto "Bobby" Balli, Director of Public Works  
**DATE/TIME:** August 4, 1993/10:00 a.m.

<b>ECONOMIC/ REVENUE</b>	The economic climate is moderate to low. The sales tax base is increasing. Recently, funding for streets and bridges has come from bonds. A minimal amount has come from the state and from CDBG funds. Maintenance funding comes from the general fund. The street maintenance budget is about \$400,000. Mr. Balli does not believe there will be extra funding for streets because of NAFTA, but funding will increase because streets are being destroyed by increased truck traffic.
<b>ISTEA FUNDS</b>	They haven't received any ISTEA funding. The planning department is "looking into it."
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	They are trying to move to a proactive form of maintenance instead of reactive. Only 20 to 25% of what should be done is actually accomplished. Road conditions were poor in 1985, then a bond program was developed to recycle streets. Now, the roads are good, but if not protected, they will deteriorate again. Their priority is maintenance.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	The computer program being used was developed by Texas A&M's Engineering Extension Service. Mr. Balli also uses his own database program to keep an inventory of streets. It calls for monthly revisions in the age and conditions of the streets. It does not prioritize streets or provide a cost/benefit analysis.
<b>NAFTA/ EXPANDED TRADE</b>	Mr. Balli mentioned the new international bridge that was built close to Harlingen. He said that this bridge "goes to nowhere." If NAFTA is passed, Brownsville will build 2 new bridges. They are trying to get an extension of highway 77 to the river, because right now, all traffic goes through downtown Brownsville. The Mexico truck traffic is destroying the intercity streets. These trucks do not have weight limits, so they travel through interior streets overloaded. Truck traffic has increased in the last few years.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Brownsville  
**OFFICIAL(S)**  
**INTERVIEWED:** Lamberto Balli, Director of Public Works  
**DATE/TIME:** August 4, 1993/10:00 a.m.

*What do you consider to be the economic climate in Brownsville?* The economic climate is moderate to low. You are talking about income? That is about right. We have some of the lowest paid city employees in the state. I think the City of Brownsville was financially healthy at one time. But with the peso devaluation in 1982 or 1983, we began to decline. We declined until a year or two ago when we started to gradually increase. Gradually meaning our sales tax base is increasing. The income from our hotel/motel tax is increasing. Salary levels, I don't know. Every major election year, the commissioners push for a cost-of-living increase. We don't have any type of merit system. That is our problem. Our utility company is also municipally run like a division of the city. They do the electric, water, and sewer. Out of this office, we do streets and drainage and solid waste. Over at water, sewer, and electricity, they have a merit system. They have cost-of-living increases yearly. But, they are the income generators. All we have is garbage.

*How about funding for streets and bridges? Where does that come from as far as local, state and federal sources?* Lately, the money has come from bonds. A minimal amount from the state. Some federal in the way of community development block grant programs. That is minimal too. I think the Committees here really want meaty projects like building a park, building a homeless shelter, a church facility. Lately, we have been getting kind of pushed aside. The infrastructure takes a back seat. You get up there and rant and rave about I need this for sidewalks, for streets, for drainage systems. They say sorry, we're going to build a park. *You are talking about construction, what about funding for road maintenance?* Maintenance? All maintenance currently comes from the general fund. I have been with the city for five years, and I have been at this position for three years; we have been moving towards a proactive form of maintenance instead of a reactive form. Our street maintenance budget is at about \$400,000. That is nothing when you have 450 miles of streets. That is \$888 per mile per year. That gives you maybe a handful of coal mix. The problem is that we have always been reactive. It has always been patch, patch, patch. We have a bond program that allows us to rebuild a couple of miles of street each year. That has helped us to pull away from the patching and reactive emergency repairs to the proactive like chipsealing. We have been going to overlaying, chipsealing, and cracksealing to protect our investment. We still take the backseat to everybody. I was able to convince a budget committee that was formed about a year ago....On our last

budget, I was able to convince them to give me, instead of the \$400,000 for labor and materials, about \$700,000. They started at a million, then they cut it down to \$600,000, then they cut it to \$400,000 additional. I was going to have about an \$800,000 budget. We pulled \$200,000 of that to build more streets and reconstruct some streets. The other \$200,000 was going to be for chipsealing and other proactive maintenance. As usual, they said here is a lot of money. They set up an additional ambulance crew; funded a fire engine purchase; and funded a workmen's compensation study. There goes my maintenance. That happens every year. Nobody really pays attention to having a proactive form of maintenance.

***What percentage of the maintenance that should be done in a given year is actually done?*** Out of what I feel should be done, about 20-25%. We do about a quarter of what we should be doing. I guess that is a good way of illustrating that we are behind. That is drainage too. That is put into even more of a backseat. I think the City Manager right now is saying, "Well, we don't do much in drainage." The drainage division is supporting other pet projects like we are using crews at the municipal golf course rather than cleaning ditches. We are helping out the landfill because the landfill is in dire need of earth-moving equipment. I moved my excavator and my five dumps over there. That is all we can do over there. The City Manager wants to privatize that or give it to PUV who does the water and sewer and they will take care of it. PUV doesn't want it. He doesn't realize that you can't just give it to somebody. Here is two headaches and a half, take them. They are going to say that they want to be paid good money. My drainage division budget is about \$300,000. So, it's not much. ***Your funding for road maintenance has declined over the last five years?*** It hasn't declined. It has been at the same level for years. It can be seen as declining because I have asked for more and I do get it and then they pull it back. Over the past three years, we have stayed at about \$350,000 for street maintenance. That includes labor.

***Have you received any ISTEA funding?*** I don't know if we will or not. I know that Planning is looking into that. I am just waiting to get some money. We have our programs and our goals in place. It is just a matter of time. We don't have enough laborers and equipment and money for materials.

***What are the general road conditions in Brownsville?*** In 1985, they were poor. We developed a \$12.5 million bond program. In about 1990, we began a \$2 million bond program to recycle streets. I don't know if you have heard of the International Recyclers. There are a couple of other companies that do that we haven't used yet. We recycle about 25 miles of streets. Out of 450 miles of streets, we have done about 70% of the streets. However, we started those programs in 1986, so we are about due for some overlays, or at least some sealcoats on some of those streets. Even though people say that we are almost through constructing or reconstructing, why are you so busy, we are trying to protect our investment. About now, the roads are good. ***What condition do you think they will be in the next five years?*** If we don't protect them, fair because we are just doing some streets

now. In five years, they will be good but about to alligator and deteriorate. **Do you think that you will be able to protect them?** At the current allocated funds for street maintenance, no. Not at all. I did some quick surveys and talked to Director of Public Works in different areas. I estimated that Dallas spends \$6000 per mile per year on their streets. Laredo spends about \$2500-3000. It is just a means for providing a scale on how much you spend in your year-round program. We spend under \$1000. Of course, we are doing some construction, but that construction needs to be scheduled on a regular basis anyway. You have 450 miles, and streets don't last a lifetime. We should be spending at least \$2000-2500. Corpus spends about \$5000 per mile per year. We are at \$888. That is pathetic. We should be gradually increasing to protect our investment. I was talking to the Commission about that item and they gave me all that money. I explained that it was like building a new home. In a couple of years you are going to have to replace the roof or do some repairs. This protects your structure. A bad roof can't damage the foundation but in the pavement it does. The roof is your asphalt. If you don't protect that, it will tear up your foundation. Why rebuild a whole house when you can repair it over time. They said okay and approved it. Then, they started chopping.

***Do you use a pavement management system?*** I am using a program provided to me by the Engineering Extension Service. I kind of weaseled the program from them. I also have my own database program that I developed at Engineering and brought it back over here. Engineering was supposed to keep up with that. They never did so; after I had been here for a year, I pulled the program back over here. Now we are trying to keep this program up-to-date. It is a simple program that calls for revising monthly and seeing the ages of the streets, the conditions (not detailed conditions). It is like when was Price Rd. done, how was it done, when are we tentatively scheduled for chipsealing. ***Does your program allow you to do any sort of cost/benefit analysis?*** No, not at all. Nor does the one from Engineering Extension Service.

***Do you use this system to determine which roads will receive maintenance work?*** Kind of. My problem is that we are short-handed. I can go into the program and see that Price Rd. needs an overlay. But, if there aren't funds at that time of the year to overlay, 1) I can't do it and 2) there may be other prioritized work. We are so flat around here. The minimum approved slope on a curb and gutter is .2%. I don't know if you have heard what .2% is, but that is flat as a pancake. The reason is that you can't get a higher slope or you will have streets up in the air. We have a lot of standing water problems; that deteriorates your pavement. Our ground water table ranges from 3 ft. underground to about 10 ft. underground. In heavy rains, the ground water rises and deteriorates your bases. You don't see anything on the pavement, but that static level moved into your caliche base and tore everything up. You have to go in there and pull out a whole section that has heaved and sunk. Those are our priorities but it is reactive maintenance, unfortunately.

***Your priority now is to maintain what you have rather than construct new roads?*** Yes, but when we do find those extra funds, we do try to reconstruct the streets.

***Does the pavement management system that you use prioritize jobs?*** No. ***You use that for inventory?*** Yes. Inventory. A listing.

***Has expanded free trade brought about any changes in the infrastructure?*** Not yet. The only noticeable infrastructure improvement that I have seen is the new free trade bridge (Los Ninos). To me, it is a bridge that goes to nowhere. It is a bridge that Harlingen wanted and politically got it pushed through. It is so they don't have to come all the way through Brownsville. They still have to go through "nowhere." They have to go through San Benito and....To get to the bridge (shows route to bridge on map, to get to Matamoros or anywhere else, you still have to drive on the border through some beat up very narrow two-lane roads. There is nothing in there. You go to the bridge and nobody is there. The guards are asleep, literally. I drove up and there was this guy reclining on a chair. ***It is not heavily travelled?*** No. What we intend to do here...We have two bridges that we intend to put in to help with the free trade agreement, if it does go through. If you know Brownsville, you know there are two bridges. There is one going through downtown...both of them go downtown but there is a new one called the Gateway International Bridge that is in the area of the University of Texas at Brownsville. There is also the old bridge which is the B&M Bridge. It is an old railway bridge that used to turn on its axis. Those are the only two bridges. Any traffic has to go through downtown. What we are trying to do is get an extension done of Expy. 77/83 all the way straight down to the river. There will be a river crossing here. It is not yet being built. The design is pretty much done. We are just waiting on a permit. We hope to proceed soon. That is going to help me a lot because right now the trucks are sneaking through downtown on 14th St. They are tearing up my streets. They tear up my interior streets. There are some trucking companies that want to be right next to the bridge so they are all right between residential areas and the mall area. You have trucks going through some of my major streets. They can usually deteriorate my street within a year or two, then we have to go out and do spot repair. If these go through, the hazardous traffic goes out; all the heavy traffic goes out. It will do wonders for my operation. The problem is that most of these trucks go through there, and they carry in a lot of dirt; also, so my sweepers are always out there. That is one bridge we want to have done. Another bridge that is being supported by the port...they want to put in a port bridge going out straight to the river from the port. It would be a rail bridge, and all the rail traffic can go through here instead of having to go through downtown. Those two bridges are going to do wonders for our streets.

***Has truck traffic increased in the last few years?*** Yes. ***That is putting a heavier strain on the streets?*** Correct.

***When do you think the extension to 77 will go through?*** Some people say three, four, probably five years. They are thinking that if we get the permit soon, it will be three or four years. The roads in Mexico are getting better already because of free trade. So, Mexico doesn't have limits on their cargoes. So, the truck companies are saying, "Let's go up to 80-90,000 lbs.," even in the hundreds of thousands sometimes. So they try to sneak into the port, and you have a lot of overweight loads coming in. For example, a lot of steel coils get shipped into the port from Germany. They come through. Each coil weighs close to...I may have my figures wrong...The maximum load that a truck can carry is three coils. Three coils is even maxing out the limit for the DPS. A lot of times they will wait until night. I will go to check on the landfill and I will see them sneaking across with four coils. What happened one time is that they snuck in with four coils and hit a soft spot in the street. They shattered a storm sewer. The coil fell off the truck. He was cited, but it didn't do much. That coil left a huge gash in my pavement. That is what's happening.

***Do you see any increased regulation of these trucks?*** Not being in an enforcement division, I don't know what they can do. I am sure that they could do more if they had more people. DPS won't check at night, neither will the police department. They would rather work on criminals. You can tell. If you go down to the International Bridge...The pavement has been constructed by the state. It is probably 3 ft. in thickness from sub-base to base. It gets bowed. You can see the waves in the pavement. ***What can you do?*** I can't do anything.

***If NAFTA goes through, do you think you will receive an increase in funding for street maintenance? Local funding?*** No. There won't be funding BECAUSE of NAFTA. There may be funding because we are seeing these problems, and we will realize that we have to build more roads or reconstruct roads that are being torn up. ***A direct, documented increase?*** No.

## ABSTRACT

**CITY:** Brownsville  
**OFFICIAL(S)**  
**INTERVIEWED:** Andres Vega, Jr., City Manager  
**DATE/TIME:** August 4, 1993/11:30 a.m.

ECONOMIC/ REVENUE	<p>Their general economic climate is experiencing an upswing. They attribute this upswing to the following conditions: there is a large amount of activity going on at the port resulting in a large number of people going there to work in upper-level positions, several retail chain stores are under construction, and tourism. They have not experienced a declining tax base because of annexation and the increase in construction.</p>
ISTEA FUNDS	<p>They are working on some projects, but they have not received anything for sure.</p>
ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND	<p>They are working primarily on resurfacing and reconstructing the main streets in Brownsville in order to facilitate expanded trade. They do not have the infrastructure to carry the truck traffic that is currently being experienced. Road conditions are good for their area.</p>
NAFTA	<p>"The trade does not impact only our frontier, it impacts the entire state. So, if we have a good infrastructure base it is going to impact on businesses that are in the Valley or Houston. That is very important. I think this governor has realized that."</p>
MISC	<p>About 1-1.5 years ago, a plan of action for infrastructure for the entire region (3 county area) was made. The plan was submitted to TxDOT, and the majority of it was approved. They have maintained contact with each other to make sure that if something is being done it is being done as planned.</p>



**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Brownsville  
**OFFICIAL(S)**  
**INTERVIEWED:** Andres Vega, Jr., City Manager  
**DATE/TIME:** August 4, 1993/11:30 a.m.

**THIS IS ONLY A PARTIAL TRANSCRIPT. PORTIONS OF THE TAPE WERE INAUDIBLE.**

*What do you perceive to be the general economic climate in Brownsville?* At this point, I think that we are experiencing an upswing. Sales tax was up about 7.3% last year. That was quite an increase. A more normal increase is 3-5%. The other thing that is quite visible is our building permits have increased tremendously. I don't have the percentages yet but, I would venture to say it has increased by at least 35-40% over last year. That is not only business construction but also residential. Most of it is residential. I would say about 60% of that is residential. We are talking about homes in excess of \$125,000. *To what do you attribute these increases?* Number one, we are seeing a lot of activity going on at the port. A lot of people are coming down here to work. The majority of the people who are coming here are in upper-level positions. The other one is retail, chain stores. Toys 'R' Us is under construction. That is a 45,000 square feet building. Circuit City is in the process of being built. That in itself and also tourism has had a lot to do with it. *Do you see this trend continuing?* I think it will. The retail business is up and foremost right now. During the hard times in Mexico (1981,1982).....

*What have been the impacts of expanded trade on the infrastructure in Brownsville?* In 1991 the city went out on a.....referendum ..... Streets, drainage, and sidewalks encompass \$22 million of the \$36 million bond project. We are working mainly on the main streets, trying to cover the main streets as much as we can. Not only resurfacing, but some of them need reconstruction. We're fanning out into the subdivisions and less used streets in the community. .... We are not at this point in a position, because of the fact that there's so much truck traffic coming back and forth from Mexico, we don't have the main arterial streets to carry the truck traffic that is currently being experienced. So, in terms of infrastructure for that purpose, we don't have it. We've got plans for that and we should be able to...hopefully the state will be able to assist us in some areas. One of them is the bridge that is ..... will start within the next few months which will extend

U.S. Highway 77, 83 to the Highway 2 bridge. That will alleviate a lot of truck traffic coming right through town. We'll have access to the port of

.....  
***Have you seen any tremendous impact of expanded trade on fiscal conditions in Brownsville - that as compared to talks of NAFTA being passed? Have you seen any significant changes in the fiscal condition?*** Well, the fact that there's been an upturn in the economy, obviously there's been more and more trade going between the cities and northern Mexico. I think that even if NAFTA doesn't come through, the infrastructure needs are going to be there. There's no question about that. For so long, this community and this Valley has been neglected in many, many ways and one of them is highways. .... the trade does not only impact our frontier, it impacts the entire state. So, if we have a good infrastructure base, that's going to impact on what businesses like say that are in the Valley or Houston ..... That's very important. I think this governor has realized that. We can see some very positive ..... in regard to expressing or providing for attention to these things here in the Valley. ***Do you think that in the near future the state will aid Brownsville in supporting the infrastructure down here?*** I think so.

***Have you received any ISTEAs funds?*** We're working on some projects right now but we don't have anything positive at this time. We have visited with Mr. Pena, who is the Secretary of Transportation, and we have expressed our concerns about the issue, realizing that he is not the final decision maker, yet he is important because the city needs to be upgraded to the point where we can deal with the trade. I think, as I said earlier, if NAFTA doesn't come through, we're still going to experience an increase in traffic. Of course, much more so if it does happen.

.....  
***Do you charge any impact fees for developers?*** They go through the Public Utilities .....which is a subsidiary of the city, and they do collect impact fees.

***Has Brownsville experienced a declining tax base?*** No. Because of the increase in construction and the additional area we annexed last year, we should have somewhere around an \$80 million tax base. ***\$80 million more than what you had last year?*** Yes.

***Many of the cities that we've talked to would like to see legislation passed enabling them to use part of the gasoline tax for road maintenance and construction. How do you feel about that?*** We've given that some thought. I would certainly welcome the assistance. But right now the way things are, we just passed a \$36 million bond issue -- \$22 million of it is for streets, and the taxpayers are the ones that are bearing the cost of it. If some provision were made to assist the cities from taxes like the gasoline tax, I think that everyone would

.....just like the sale tax.

***How is your relationship with your local MPO?*** Yes, we do. We meet as often as we can and update ..... The relationship has been ..... One other thing that was done here 1 to 1.5 years ago is that in this three county area, we made a plan of action for infrastructure for the entire region. It's something that had not been done in the past. The plan was submitted to TxDOT and the majority of it was approved. I think it's a five year plan. We have maintained contact with each other making sure that if it's happening in Brownsville or if it's happening in ..... or McAllen, or wherever, something is being done according to the plan. It's worked out real well.

***What do you consider to be the road conditions in Brownsville?*** Good, compared to other places in this area. We're doing a lot of work. A lot of streets have been neglected for a great number of years and that's what is costing us to maintain. The end result is that you're going to end up spending more having to reconstruct instead of overlay.

## ABSTRACT

**CITY:** Corpus Christi  
**OFFICIAL(S)**  
**INTERVIEWED:** Carl Crull, Director of Engineering  
**DATE/TIME:** July 8, 1993/10:00 a.m.

<b>ECONOMIC/ REVENUE</b>	The general economic climate is slowly improving. Funding for maintenance comes from local sources. Funding for construction and reconstruction comes from a combination of local, state, and federal sources. Mr. Crull feels that funding for maintenance is adequate. The bus system allocates \$230,000 to \$240,000 per year to street maintenance. The have a capital improvements program and have bond elections about every 5 years.
<b>ISTEA FUNDS</b>	He believes that Corpus will receive ISTEA funds for projects other than streets and bridges.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	Road conditions are fairly good and are expected to remain the same in the near future. Developers are responsible for putting in new roads. The city inspects the work as it is being done.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	The street department uses the Paver program. It provides a cost/benefit analysis. Streets are ranked 1 through 10. Those ranked a 10 are the best and are inspected once a year. Streets at the lower end of the scale become candidates for maintenance.
<b>MISC</b>	A lot of residential growth and refineries are expanding. This has increased traffic. "Corpus Christi has an Urban Transportation Plan which reflects the long range street width and lane configuration intentions of the major arterials."

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Corpus Christi  
**OFFICIAL(S)**  
**INTERVIEWED:** Carl Crull, Director of Engineering  
**DATE/TIME:** July 8, 1993/10:00 a.m.

*What do you perceive to be the general economic climate in Corpus Christi? The general economic climate is slowly improving. You think that it is an improvement over the past ten years?* Yes. Seven or eight years, yeah. The turndown in the oil industry had a significant effect on Corpus Christi.

*Where does funding for roads and bridges come from? Is it mainly state, local, or federal?* Primarily from a local source for maintenance. Money for construction and reconstruction comes from a combination of state, federal, and local sources. *Has the funding from state and federal sources changed in recent years?* It has been fairly constant and declining. The Engineer in the Highway Department has been real aggressive in pursuing state and federal funds for districts. He has helped Corpus Christi also. *What effect has ISTEA funding had on the city? Do you think that you will see any of that funding?* Well, even with the changes in funding, the pipeline to get the money is the same..through TxDOT. So, I don't look for any significant increases except for some special programs for things like bike paths and port related improvements which the ISTEA bill addresses. I don't look for the highway funding to change much.

*What portion of the need for road maintenance are you able to meet? Is there a budget shortfall?* From a maintenance standpoint, you always like to do more. I would say that funding is adequate.

*Are you currently using a pavement management system? The Street Department does have a pavement management system. Do you know how long that has been in use?* Well, I wasn't here when it happened, but the city developed its own pavement inventory program back in the early 1970's. They recently converted to Paver. They converted about three years ago. *Does that system have the capability of giving a cost/benefit analysis?* Yes. *Do you survey the streets?* They do a...Basically the way that program works is that you rank the streets from one to one hundred or one to ten, ten being the best. Then, if the street is ranked ten, you only inspect it once a year. As they come down, you look at them more often. If they hit a certain level, they are candidates for a maintenance program.

***What is your impression of road conditions here? Fairly good. Do you see that changing in the future?*** No. I think that we are adequately handling this.

***Have you seen a change in traffic pattern and/or mix?*** Well, with a certain amount of growth, you tend to increase traffic volumes. You expect it to happen. There are some areas that are experiencing congestion at certain times of day. The improvements that we have under design will probably help alleviate some of that. ***Has there been substantial industrial growth in Corpus Christi?*** Several of the refineries are expanding. The naval base at Ingleside brings more people into the area. There has been a lot of residential growth in the last ten years.

***Are developers responsible for putting in roadways?*** Yes. The city reviews the developers, plans for his infrastructure. We provide an inspector to inspect the work as it is being done. When it is done, we accept it.

***Do you have a local bus system? Regional Transit Authority. It is an independent agency. Do they provide any funding for maintenance of the roads they use?*** They rebate back to the city about \$230-240,000 a year for maintenance on the bus route.

***Have you recently undertaken any major projects?*** The major project underway right now is the Walter Road project in the Flour Bluff area. That is a \$6.5 million project. ***That would be a federal or state project?*** All local. The state is taking bids on the Crosstown Expressway expansion. They always have three or four major projects underway.

***Do you have an optimal thoroughfare plan?*** We have an Urban Transportation Plan which reflects the long-range street width and lane configuration intentions of the major arterials. We adopted it in 1963. It has been periodically updated since then. The last update was done in 1988. We are in the process of reviewing and updating that now.

***Do you have a Capital Improvements Plan? Yes. Bonds sold for that go into major projects? Yes. When was the last bond election? 1986. Do you see one coming up in the near future?*** My guess would be either fall of 1994 or fall of 1995. In the past, we have been trying to do our bond sale about every five years. It is a five year program. That was the intent in 1986, but there were certain revenue projections associated with that as far as sales tax and property tax and so on that didn't come true. Therefore, we had to stretch out the bond program over a longer period of time.

***How do weather conditions affect your streets?*** Streets are more affected by a freeze and thaw cycle which we don't have. The other environmental factors are soil conditions. We have clay soil here which is subject to large swell potential which has an impact on the pavement. That is the only environmental factor that I would say is a problem.

## ABSTRACT

**CITY:** Corpus Christi  
**OFFICIAL(S)**  
**INTERVIEWED:** David Seiler, Director of Traffic Engineering Department  
**DATE/TIME:** July 8, 1993/10:00 a.m.

<b>ECONOMIC/ REVENUE</b>	They expect to have another bond election to maintain a 5 year capital improvement program. Corpus has a Street Improvement Program where the Regional Transportation Authority (RTA) provides the city \$200,000 to \$250,000 a year. Both the RTA and the city agree on how the funds will be spent.
<b>ISTEA FUNDS</b>	District 16 is allocated \$37 million. There are 20 different funding categories. Mr. Seiler said, "the more money that is expended within the city of Corpus Christi in ISTEA funds, the less that TxDOT is able to expend outside the city limits on state-maintained highways." He said that it is competition for funding and not necessarily new money. Corpus is likely to get ISTEA funds for projects through the Metro-Mobility Fund and the STP.
<b>RELATION WITH LOCAL MPO</b>	They have a good working relationship with the MPO. The MPO did a transportation infrastructure analysis on the south side area where this is a "traffic crunch."
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	Mr. Seiler said he has traveled most major Texas cities and thinks that the road conditions in Corpus are adequate. They need wider street cross-sections to accommodate things such as exclusive left and right turn lanes. This is cost prohibitive because of the need to purchase right-of-way. He believes that in 15 years, some streets will be below transit capacity. They are working with the county and TxDOT on a two-way lift bridge outside the city limits. Mr. Seiler said that the county and city are separate when it comes to projects, unlike Dallas County. Corpus has 1200 miles in city maintained streets, not including expressways.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	Mr. Seiler said that the Street Services is a separate department and they have their own system. He was not very familiar with it, but he knew that they do use it to rank streets for maintenance. He receives the MPO Activities, and the city will likely have "an element in our FY94 Unified Planning Work Program for updating and increasing the capability of the city's pavement management system."
<b>MISC</b>	Corpus has a master transportation plan which is being updated to show the wider intersections. Commercial development is concentrated in the south side area where there are three malls within a half mile of each other.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Corpus Christi  
**OFFICIAL(S)**  
**INTERVIEWED:** David Seiler, Director of Traffic Engineering Department  
**DATE/TIME:** July 8, 1993/11:00 a.m.

*We spoke with Carl Crull earlier, who said that the last bond election was in 1986. Is that true?* Yes. We expect one in another two years. Our planning process is one where we try to maintain a five-year capital improvement program where we list both projects that are authorized by voter approval and our unauthorized projects which are ones that we have not yet taken to the voters for approval for inclusion in a capital improvement program. We do have a capital improvement program which includes projects that we want to undertake within a five year time period. It is a matter of obtaining the necessary funding for voter approval before those projects.

*What is your impression of road conditions here in Corpus Christi?* Well, I don't travel a great deal, but it seems like I have been in all of the major Texas cities in the last few months. My perception of our roadway system is that it is adequate. But, it can certainly be made to operate much better. We, being the city, didn't envision a lot of the roadway capacity needs that we now have. I'm talking about wider street cross-sections to incorporate things such as... (We're getting into some intermodal stuff now and not just vehicular travel)...bicycle lanes, exclusive right turn lanes, exclusive left turn lanes. We have to do a lot of split signal phasing transference to accommodate vehicle movements which would otherwise be made much easier if we had exclusive turn channels. With the limited right-of-way that we have on some of our street cross-sections and with the development that has been taking place, it is becoming impossible to...really cost prohibitive to go in and purchase additional right-of-way. There are areas where we are moving forward with the purchase of property or are in the planning process for the dedication of the street right-of-way in relatively undeveloped areas. The latter in cases where planning occurs in our master transportation plan. We are updating that right now to show wider street cross-sections through a comprehensive planning process. Should any replanning occur, it will be attainable since we have that right-of-way. Back to your question. It is adequate. Our street cross-sections are adequate for the amount of traffic that we have on them right now. Corpus Christi is not experiencing a serious growth problem. Our population growth averages about .5 to 1% a year. I think that is under what other major cities are experiencing. I anticipate, though, that within a fifteen year time frame we will have some streets that are well below transit capacity. So, it is not so much of a problem right now as it will be in the next twenty years. There are some areas of the city where we are having growth problems. In our south side area, we have



primarily a concentration of commercial development. Along the State Highway 358 corridor, where there is extremely limited expressway, as well as the streets that intersect with Padre Island Expressway, there are six or seven principal arterials that intersect with and cross the Expressway that have very limited right-of-way right now. Transit impact studies have been conducted in years past that have concluded that if development occurs.....several of the consultants have suggested that those roads be expanded to six to eight travel lanes. Right now, we just don't have the right-of-way. We are starting to see the traffic crunch. We are receiving responses for an RP that our MPO just put out about a month ago to do a transportation infrastructure analysis in our south side area. The intense commercial growth is taking place in an area where we have three mall areas that are within a half mile of each other. Those are the areas where we have the traffic crunch right now. The south side study is designed to identify the inefficiencies in our transportation infrastructure both on the Expressway and on the adjoining city maintained street system, at which point in time, comparisons will be made with our current capital improvements program and our master transportation plan. It will set the stage for many of the improvements that we want to attain in our next capital improvements program. *It will take a CIP bond election to put all of that in place?* Yes, very definitely so. We know it will. There are certainly areas that we know will have to be included in the bond election for us to be able to move forward with street improvements. There are probably some other areas that will be identified that we haven't even touched on in terms of some more innovative access to the mall...flyovers and things of that nature. That would actually be a primary cost responsibility of TxDOT. The city would have some participation on a cost-sharing basis.

*Do you have any projects that are done in conjunction with the county?* The only project that we have that comes to mind that we are sharing with the county as well as TxDOT is a two-way lift bridge project. We are all sharing in the cost of the upgrading. It is a lift bridge over the Corpus Christi ship channel outside the city limits. The city still has some responsibility, through a local agreement, for participating in upgrading that particular structure. As far as streets go, I can't think of any. Did you ask Carl that question? I can't think of any. The county and the city are pretty separate entities in terms of projects. As opposed to, as an example, Dallas. I think the county was an instigator in terms of not only participating in the cost but also encouraging other cities to participate in a project that resulted in a metropolitan-wide type of signal system. It was a signal coordination program that was carried from one city like Richland to another. We have never done anything like that. Insofar as interagency agreements with other agencies, we are getting more and more into the Regional Transportation Authority, providing participation in streets, which would also include signal improvement projects with the city. It is on a pretty limited basis right now, but I could see it increasing through the public and community pressure. In comparison, I guess, with the Metro System in Austin. They recently voted to provide funding of about \$25-30 million to participate in street improvements in Austin over the next five years. The city's present agreement with the Regional Transportation Authority...the city used to operate the transit system and when

the Authority received voter approval back in 1987, we established an interagency agreement with them on miscellaneous things. But as it relates to street improvements, the only thing in the agreement right now is called the Street Improvement Program where the Regional Transportation Authority provides the city \$200-250,000 a year. In the agreement, the city and the RTA both agree on how that money would be used. The money has really been spent on and will be spent, in the short time, on street maintenance. It won't be spent on any street widening improvements or for any new street improvements. That amount is considered to be about what the RTA buses are creating in way of street damage where the routes are established. My office is the liaison with RTA in terms of looking at those routes and determining where bus stops will be. In order to do that, we have to have the information on the number of buses, the number of stops that would be made at each location, etc.

*When we spoke with Carl this morning, we asked him if you have a pavement management system; he said that you are currently using Paver. Is this correct?* Street Services is a separate department, and they have their own pavement management system. I am not very familiar with it. I know that it relies heavily on inspectors going out and visually obtaining information. They take that information back and enter it into the program which is used to rate the maintenance needs of their streets. I get the impression that they have had that for five to ten years. My office receives the Metropolitan Planning Organization Activities; we will likely have an element in our FY94 Unified Planning Work Program for updating and increasing the capability of the city's pavement management system. We had it in last year's UPWP not as a funded element but basically to discuss the need for it and to lay the groundwork for including it in the 1994 UPWP.

*What do you perceive to be the effect of ISTEA funds on Corpus?* There is a lot of confusion over ISTEA; misconception is a better word. Those that are not so familiar with ISTEA are thinking that there is a pot of gold at the end of the ISTEA rainbow. The way I understand that TxDOT works and in particular our Highway Department District (District Sixteen) is that District Sixteen is allocated a certain amount of funding for every city and metropolitan area within that district for maintenance activity and new construction activity. \$37 million is what this district gets. With ISTEA funds, there are twenty different funding categories. With the exception of the Highway Commission Strategic Priority funding, any projects that are approved, whether they be Metro-Mobility funds which are the funds that our MPO has the authority to say, "These projects will take place and that is \$3.7 million a year." Those funds are still being encumbered in the \$37 million. The Highway Department obviously has a vested interest in wanting to keep as much of that \$37 million allocated towards TxDOT maintained highway improvements, whether they be the Expressway system or bridges or county FM roadways. What I am saying is that the more money that is expended within the city of Corpus Christi in ISTEA funds, the less that TxDOT is able to expend outside the city limits on state-maintained highways. We still have competition for funding. It is not necessarily creating new money. As long as the TxDOT District here in Corpus Christi still has that \$37 million in

funding...that doesn't mean that we are not going to get more ISTEA money to fund street improvements in Corpus Christi; it just means that the Highway Department, in turn, would be faced with receiving less money to spend on its highway system. There is that feeling of competition. The things that we see as being more within our grasp to take advantage of ISTEA funds are the Metro-Mobility funds and the STP. Corpus Christi and the Corpus Christi MPO area only amounts to \$3.7 million a year. And, we still negotiate that. The MPO is able to select those projects and through consultation with TxDOT. Those are funds that the Corpus Christi MPO has exclusive authority to say, "We will use that money on these projects whether the state likes it or not." Even though the state is a voting member of the MPO, that is just one member. ISTEA opens the door to restricting what projects will be funded. For instance, the Enhancement Program which will be announced fairly shortly....there is about \$500 million in the Enhancement Program over the next ten years, which is not a lot of money. The cities will compete with each other for these funds that will be directed to certain projects, whether it be the preservation of historic sites (a non-transportation related area), the creation of bike lanes, or the enhancement of abandoned railroads and railways into hiking trails. ISTEA is certainly....The effect it is having on Corpus Christi is to make us look to different areas where ISTEA funds can be applied as opposed to the traditional street improvement projects.

***By what percentage has highway inventory increased over the past ten years?*** The inventory growth that has taken place has been restricted to local streets as subdivisions are created. At this point in time, the subdivision developer is responsible for putting in the street improvements as part of the city's master transportation plan. Some of those improvements go beyond the local street system. They include extension of arterials where they bound that particular subdivision or collector streets. It has been a real job....In terms of percents, I have never measured it. I would be surprised if it were more than .5% a year. I think we have about 1200 miles in city maintained streets. That doesn't include the expressway system. It has been pretty stable over the last few years. We had a growth problem in terms of new subdivision development. It is only starting to become more vital in terms of new subdivision development.

***What is the average age of the streets in Corpus Christi?*** You mean the streets that are physically in place now? You aren't talking about how long they have been there? I would say, and I am referring the collector streets and the arterials, an average of fifteen years. I am not including in that fifteen years the sealcoating and street maintenance activities. If you look at it in terms of street maintenance activities, the Street Services Department is on a schedule right now to reseal all streets on a five to seven year cycle. They are really trying to stick to about a five year cycle. That is their target, but I don't think they have been able to reach that.

## ABSTRACT

**CITY:** Dallas  
**OFFICIAL(S)**  
**INTERVIEWED:** Jim Hallman, Project Coordinator, Department of Public Works  
**DATE/TIME:** June 15, 1993/10:30 a.m.

<b>ECONOMIC/ REVENUE</b>	<p>The economic decline in Dallas has bottomed out and is coming back up. About 90% of funding for roads and bridges is local, 5% from the state, and 5% is federal, (ISTEA). There has been an increase in federal sources, and Mr. Hallman expects more in the future. He said that you must have projects ready when new funds are presented by either federal or state sources in order to meet deadlines. Bonds are used for reconstruction, and the general operating budget is used for maintenance. Dallas is using more user fees such as environmental fees for the Stormwater Protection Program. A 1% sales tax goes to DART (bus system); only a small portion goes to Street Operations for repairs. It is a privately owned system. Major thoroughfares that cross city lines are paid for by the county. There is more participation with the county than with the state.</p>
<b>ISTEA FUNDS</b>	<p>Dallas has received some funding.</p>
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	<p>Road conditions are deteriorating at an annual rate of 2.5%. This is from a satisfactory to an unsatisfactory state. Mr. Hallman suggests it is a lack of funding and preventative maintenance that is causing the deterioration. They are currently building a new bridge and totally reconstructing Regal Row in the industrial district, a \$4 million job.</p>
<b>PAVEMENT MANAGEMENT SYSTEM</b>	<p>They are currently developing one. They use an annual street survey for an inventory and street condition history (back about a decade). Each street is graded visually. The survey is a very extensive grading system. They also use dynamic testing which determines base failures. Survey data is kept on a mainframe, but does not perform a cost/benefit analysis. A cost/benefit analysis is used to prioritize thoroughfares coming up for bond election.</p>
<b>MISC</b>	<p>Citizens can go through a petition process to improve a street (addition of curb and gutter). The city pays for the drainage and engineering and shares the cost of paving with the citizens.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Dallas  
**OFFICIAL(S)**  
**INTERVIEWED:** Jim Hallman, Project Coordinator, Department of Public Works  
**DATE/TIME:** June 15, 1993/10:30 a.m.

*What is the general economic climate in Dallas?* We think that we have probably bottomed out here, much as a lot of other cities here in the United States have. I think all cities have seen somewhat of a decline: California is still in a decline; the East Coast is somewhat coming back up. I think we have probably bottomed out here. In fact, our last projections on our tax appraisal districts show that it has pretty well bottomed out. It dropped some but very, very slightly compared to past years. I think that we are probably going to be climbing slightly. It is going to take some time. It is going to take a decade or better, but we are going to start climbing up to a better economic climate.

*What percentage of funding for roads and bridges is obtained from local, state, and federal sources?* I visited with Charles Griffith who is our Inter-agency Coordinator on that. We have about...90% of our funds are local. We are pulling about 5% from the state and 5% from the feds too (their ISTEA program). You are familiar with that, I am sure. *Have you had any changes in your funding pattern?* He seems to think that we have seen an increase in federal sources. There was, of course, the economic program that President Clinton was putting together here not too long ago. However, it failed, but I don't think that is the end of the story. I think there will be some more coming in the future. That seems to be the trend. It is not only to build back the infrastructure in the United States, but it is also a trend that creates jobs. I think that is what the current government wants to happen. They are looking for increased jobs. They know that road construction brings on jobs. *What do you see occurring in the future?* That goes back to the previous question. I think that the fed money will probably increase somewhat in those special type programs. I don't think that you can budget your operations based on what you think is going to come. I think that you have to get them to commit money and then provide the programs. You need to have the programs ready; you need to have the estimated amounts. You need to have jobs lined up as you begin to hear about funds so that you can get in on the bandwagon. I don't think that you should depend on funds from anything but your local funds. State funds have a way of going other places when they are needed. Stay ready for federal funds and anticipate that you will get them, but don't bet on it. Be able to say, "Here is a program that will meet the federal requirements...it is ready to do this...the city is able to fund this amount." There is always some federal participation. And have those projects ready. If you don't, some other municipality will

get them. If you can't make the deadlines that they need for those projects...I think you need to be ready for this money.

***What is your main source of local revenue?*** In the Public Works Department, our main source of funds is bond funds. We sell bonds. It varies. We had a 1985 bond program; it was a very large program. We had a 1989 program; it was a little bit smaller. That was because of some needs and some flood protection. We are looking now at a 1994 program. Hopefully, the council will allow us to sell bonds in 1994. We do also get some funding from property and sales tax, but the majority of our funds for road construction comes from bond sales. ***That is just for construction?*** Maintenance funds are almost always provided out of general funds which comes from sales and property taxes.

***Is there any specific reason why the 1985 bond program was so large?*** Well, there was a need for infrastructure rebuilding and coming back up. It was one of the larger programs. I think you run a trend of very large programs and then you will go into some smaller ones, and then come back up into some larger ones. Sometimes you will flatten out and have a couple of small ones together. I think it just depends on a lot of things, but one of them is economic climate...what the citizens of your municipality can afford. If you have already gotten taxed to the gills just trying to maintain general obligations, then you might not have a big bond sale. However, if the climate has stabilized and you are on an upswing, you might want to increase a little bit. I think that depends on....you have to take in a lot of things such as what additional fees are being put on people for other services...you have to take in water and sewer fees, for instance, if they are increasing by dramatic amounts, you may not want to have a bond program. The other thing that determines when a bond program comes about is when you finish paying off the prior program...your debt limit has been reduced so, therefore, you can increase your debt limit again [with another bond program] without increasing taxes. Sometimes just closing out old bonds and paying them off is kind of like buying a new car, you don't buy two of them. You wait until you have the first one paid off and then you buy the second one. You didn't increase your debt load; you just maintained it. That is very similar to what bond programs are.

***Have you been experiencing a declining tax base in Dallas?*** It has been. Starting in the 1980's, we have had a difficult time with a declining tax base. Just like all the other Texas cities. We also saw some fair decline in general sales tax. That dropped considerably. And, we have had to pull in the old belt on a couple of projects...especially in the general fund departments. Not so much in the bond program because we had that money allocated. The general fund departments like Preventative Maintenance have been especially hit.

***Has the method of obtaining funds changed?*** The general way we get them is the same which is property tax, sales tax, and general revenue bonds. However, I think that just as with all other cities, we have been looking at more and more user fees. We are looking at

those types of fees to fund special areas. I think that the use of user fees will increase. In the past few years, we have also had to come up with some other fees--environmental fees....the Stormwater Protection Program. You are also seeing other laws coming out of the Texas Water Commission growth regulations which are also dictated by the EPA on recycling and landfill type things. They don't have anything to do with transportation, but it is still a cost to the city. Again, those type of fees and individual user fees are being increased.

***What about funding for maintenance and reconstruction?*** Routine maintenance of existing roadways....I've got some numbers here on that for you...For road and bridge maintenance and reconstruction, Street Operations is the ones who actually go out and do the maintenance and repairs on the streets. In '91-'92, their actual budget was \$14,942,624. That is from October 1, 1991 to September 30, 1992. In '92-'93, which is the year we are in now, their estimated amount is \$18,571,801. And their proposed budget for '93-'94 is going to be about the same. Those estimates and the proposed budget will change depending on Council recommendations of cut-backs and whatever needs to be done. In the reconstruction type efforts, the 1985 bond program provided about \$5 million for that. I will try to verify that and give you a call. On determining the allocation of money between maintenance and construction, again, the general fund which is provided by sales tax, user fees, and property tax revenues, is used to fund routine maintenance. Reconstruction is funded through the sale of bonds. Resurfacing is also from bond sales.

***Some funds come from property taxes?*** There are some funds. They pay for administrative costs, operating costs, things of that nature. Bond sales generally provide for the actual construction funds, engineering, that kind of thing. There are some administrative costs in public works that are funded by property tax revenues.

***Does any portion of the sales tax go to Metro?*** One percent. What we call DART in Dallas. It is totally separate from the City of Dallas. It is an agency of its own. DART was brought into the Metroplex area. There are some cities in the Metroplex that are part of it and some that are not. Not all of the surrounding communities are in it. The majority are and all charge a 1% sales tax to fund that. The old Dallas Transit System was taken over by DART and is what composed the base of it to start with. Then, of course, through the years that it has been in operation, it has expanded beyond the old Dallas Transit System. Adding a lot more buses and terminal areas.

***Does any of that funding come back to the Street Division to maintain those roads used by the buses?*** There is a slight amount coming back. I don't have that number. It generally comes back to Street Operations for repairs of those roadways. However, we are pressing more and more to get funds from them for repair of those roadways. It has only been in the last few years that we have started getting funds from them. We are trying to increase that amount as we are always seeing the amount done by buses.

***Do you currently use a pavement management system?*** We are currently developing one. We have a very, very good management system in the form of a survey that is done annually. Every street is looked at annually. It is graded. I can give you a copy of that program. That program is being somewhat expanded to come in with various grading variations and numerical values. We are even looking at some engineering testing such as dynamic testing of streets. I don't know if you are familiar with that. You actually use a machine that will use dynamic force to test the street in spot locations to determine where you have base failures or where you are potentially going to have base failures. It is a flex test. It uses a machine that is hooked up to a computer.

***Tell us more about the annual survey you use.*** It is a windshield type system. You drive the streets...the same person drives them. They grade them "A" through "U." "A" through "E" is the grading system. "A" being excellent; "E" being unacceptable; "U" meaning that there is a utility cut there, and if that were repaired, then the street would be in satisfactory condition again. I can give you a list of the gradings that shows what an "A" is...what you should look for. We also grade the curbs and the sidewalks at the same time. Streets are measured--length and width. Obviously, you don't remeasure every one every year because they don't change that often. If they were to change for some reason, such as the street was lengthened, then we would measure and add it on to it. We have it by blocks. It is an extensive list. I will show you the Street Inventory for 1992. This shows you everything. ***(Explains Street Inventory)*** It is a very intensive inventory. We can go back for about a decade and look at how the conditions of the streets have gone up and down.

***Is all of that data entered into a mainframe? Yes. Does that provide any cost/benefit analysis?*** Not at this time, but that is part of the program that they are looking at now. Our Transportation Department also has a new cost/benefit program. You might want to visit with Keith Manoy *(Sp?)* His telephone number is 670-4038. He is very much involved with that system. In fact, I talk to him quite often. He is really involved in thoroughfare planning...determining what thoroughfares are going to be coming up for future bond programs, and they are doing cost/benefit analysis on each one of those and using that to prioritize them.

***What is your general impression of road conditions in Dallas?*** They are deteriorating. About 2.5% each year is what I calculated the other day. When I say 2.5% a year, that is from a satisfactory state to an unsatisfactory state. In 1990, we are at 69.67% satisfactory. In 1991, we were at 67.47%. We are not at 64.77%. In two years, we have seen a 5% drop.

***Why is this deterioration occurring? Are the streets old? Do you not have enough funding?*** It is lack of funding and a lack of preventative maintenance. Preventative maintenance is a very big factor. As I said a while ago, the Street Operations department has been hit with reduced funding over the years. Preventative maintenance is,



unfortunately, one of the programs that gets cut. You repair the dangerous areas. You don't have the funds to go out and do fogsealing or as much cracksealing as you want to or overlays in areas of streets that have deteriorated so bad that the streets begin to fall out of the satisfactory categories.

***What percentage of the maintenance that needs to be done in a given year is actually accomplished?*** I don't know. I wouldn't be able to tell you that we are doing 80% or 90%; I really don't know.

***Do you get many complaints on the roads? How do you deal with them?*** We have various systems for letting citizens tell us what their problems are with the streets. We have an action line system. They call in to one number for all kinds of complaints. Each council member also has several Town Hall Meetings a year where he listens to complaints and concerns. We get letters and individual calls to the districts. We usually have district representatives at these Town Hall Meetings. As far as streets needing construction, resurfacing and things like that, that is usually...the majority of those we receive from our Street Department. Those are based on a lot of things, some of them being the number of repairs they have to make on a street, the condition the street is degrading to...They take into account the number of complaints they are receiving. We also have what we call "City Manager's Requests" or CMO's. We have to respond to those just like we would Action Centers or regular service requests. There are various means for people to get things done: from calling their district supervisors direct to the Town Hall Meetings to an Action Center number that is posted in the newspaper and telephone directory. And, of course, the City Manager's office and their own council office. We went into single member districts several years ago, so the constituents know that their council members are looking out for their concerns. Therefore, they will call their council member's office and that generates what we call a CMO. As the number of requests increases on certain streets...If we are unable to make the repairs on those streets, they generally fall into reconstruction. We also have a petition process in which you take a nonimproved street which is normally a street with asphalt or bar ditches and no curb or gutter. You have to get a certain percentage of the residents of that street to sign the petition. The city will pave the street and put in drainage. The citizens on that street will pay a portion of the construction costs. Usually the city pays for the engineering and the drainage or for the drainage and, then, the city shares the cost of the paving with the citizens.

***Have you experienced any change in traffic pattern and/or mix?*** Keith Manoy would probably be more likely to have that information.

***Have you recently undertaken any major projects?*** I have a list here that Charles gave me. This is an interagency coordination summary report. We are building a brand new bridge now. Bridges, as you well know, are very expensive. They started out just a few months ago. We've got that going. There are various lists of projects. They would be too numerous to just call out. Charles highlighted some here. Here is an alpha road project

from Dallas Parkway to Westin. That is somewhere in excess of a million dollars. We are changing it from four to six lanes. There are a lot of different projects. Regal Row is one that is coming up. That is going to be a big project. It is four lanes and it is going to be total reconstruction. It is a very long street over in our industrial district. That is an example of a street that was put in over some very bad soils. A lot of traffic and a lot of heavy traffic and that has just....They have started on part of it. That is a \$4 million job right there.

***How about state and federal participation on some of these projects?*** We do have that. The ISTEA funds and, of course, the county funds. They have bond sales like we do. The percentage varies depending upon the needs. We may be in it only for the engineering costs on some of these. On some of the others, we may share some of the costs for drainage. They will eat the engineering costs and we will do the drainage costs.

***How do they go about determining who pays what portion?*** I really don't know how they do that. The county, again, is just like the city. How much they do for their bond programs depends on economic climate. They have a tax on property and sales just like we do. Their taxes for road and bridge districts are based also on that. They do have a county bond program. When some general obligation bonds here have been paid off and they have reduced their debt somewhat, they will sell some more bonds and build some more projects. What falls into county programs and what is a pure city program varies. Usually in the major thoroughfares that are crossing city lines, the county pays for that....especially if it is a major thoroughfare. The state has programs where there are state highways in a city, if they are not what they call limited access roadways. Highways such as Preston Road. That is a state-designated highway. The state will usually put up the funds for those. We have some participation on some parts of those. We usually share more participation with the county than with the state. When the state comes in to do a program, they usually do the whole thing.

## ABSTRACT

**CITY:** El Paso  
**OFFICIAL(S)**  
**INTERVIEWED:** Dr. Kenneth Beasley, Chief Administrative Officer  
**DATE/TIME:** July 26, 1993/4:30 p.m.

ECONOMIC/ REVENUE	<p>The general economy is stable. Their ties with Mexico contribute largely to their economy. This part of the economy has been stable for the last ten years. Their tax base has increased steadily every year, and they expect this trend to continue. State and federal money is not obsolete, but it is less than what they feel they should have received. Construction is paid for with bond money. Money for maintenance comes from the general fund. They get about \$1-1.5 million for street maintenance from their mass transit system. Developers pay for residential, collector, and arterial streets up front as a part of the development.</p>
ISTEA FUNDS	<p>They have not received the actual money yet, but they have had two projects approved. The two projects total about \$60 million.</p>
RELATION WITH LOCAL MPO	<p>El Paso is the MPO.</p>
ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND	<p>Their spending priority is both maintenance and reconstruction. The streets are in a generally poor condition. The streets were not ready for the bus system. Only about 50% of what needs to be done is actually done. The streets collapse before the bond that was used to build them is paid off. Dr. Beasley feels that national policy is shifting to transportation and he hopes to see improvements in five years.</p>
NAFTA	<p>Dr. Beasley stated that they would not be able to handle infrastructure needs fiscally by themselves. They are restricted in their local financial base, which makes federal and state funding more important to them. "It also means that moving traffic is more significant because there is no value in getting the traffic to the city if you can't get it through the city and on to the next point."</p>
MISC	<p>People from Juarez go to El Paso in large numbers. They pay sales tax on what they buy, but they don't pay other taxes there. So, in terms of what they spend, they don't produce much income for the city.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** El Paso  
**OFFICIAL(S)**  
**INTERVIEWED:** Dr. Kenneth Beasley, Chief Administrative Officer  
**DATE/TIME:** July 26, 1993/4:30 p.m.

*What do you perceive to be the general economic climate in El Paso?* In terms of the recession, we have not been hit. The general economy is stable with the exception perhaps of housing. We are not over-built like Dallas. We are not oil related so we did not have that fiasco. We have very stable military operations here at Fort Bliss and White Sands, which is a military research center. Fort Bliss is extremely stable. It is also the Air Defense School for... We have about two thousand German officers here all the time. We have two major refineries. We'll never go heavy industry. It's not much of an issue. We have big ties with Mexico; that is part of our economy. That's the part that can become wobbly; it has not been wobbly in the past ten years.

*Have you seen a decline in the tax base?* No. In fact, we are one of the few Texas cities in which the tax base has increased every year. It never has declined. Steady increase all the way through. *Do you foresee this trend to continue in the next five years?* Oh yeah. The city is growing about 1.5% annually. Juarez is growing at about 1.5 to 2%, probably closer to 2%. This is providing a basis for property values. Juarez is a third world country, but the sites that are available in Juarez for manufacturing are equal to or higher in value than El Paso. We are becoming a major distribution center, probably will continue that with free trade.

*Has there been any infrastructure changes or plans to accommodate NAFTA?* No, that's what we're working on right now. It's a big issue with regards to transportation revenue to be available with state and federal money. We would not be able to handle that kind of infrastructure fiscally by ourselves. Part of that problem is that property tax only pays for about 38% of the total cost of the city. So, as you add people to the city their ownership of property only pays 38% of their cost to the city. We don't have suburban cities because we're in the desert. Secondly, our only suburban city is in a foreign country. Therefore, the 1% sales tax, for us, does not produce as many dollars as one cent does in Austin, Fort Worth, and cities of comparable size, because they have bedroom cities that are affluent and they do a lot of buying, a lot of shopping...they're in the central city a lot. Austin probably runs 30 to 50% more money from that one cent sales tax than we do. We are restricted in that local financial base, and that means, therefore, that the federal and state

dollars are much more important. That also means that moving the traffic is more significant because there's no value in getting the traffic to the city if you can't get it through the city and on to the next point. We have to depend on federal and state...we have not gotten our fair share of state money. There are a variety of reasons for it. We are getting closer to it, but we still could not finance it with the money. ***So, state and federal money is not obsolete?*** No, but it's less than what we think we should have received. We have to work harder to get certain kinds of programs approved, although they're beginning to approve them.

***Have you received any ISTEA funding?*** Not in actual cash yet. We've had two major projects approved. One is what we call the Yarbrough extension. The other one is what we call Donaldson which will hook up with another street, what we call Tesoro. These two projects are about \$60 million.

***What is your relationship with your local MPO?*** The MPO is in the city. The fact that the MPO is in the city is largely because El Paso comprises 90% of the county. There are only about 18,000 people who live in the rural nonincorporated areas. So, you see we are out here all by ourselves. So, you see the MPO, for practical purposes is the city. Now, some of the down river counties are not enthusiastic about our concept of the area, and the county of El Paso is not always enthusiastic about our concept of the area. The MPO is here in the city. The grant is to the city...the contract is for the city.

***What is your main source of funding for roads and bridges?*** There is no...we don't allocate it in specific terms. The property tax, the sales tax, taxes for the utilities and electric company are the three biggest single sources of money that we have that goes into the general fund. The construction of streets and highways is paid for with bond money which means general property taxes. Maintenance of the facilities comes out of the general fund. The mass transit department that we have is under a special law. We take and it is financed by ½¢ sales tax...we take a million to a million and a half of that money. We use it for street maintenance.

***We heard that you are considering using impact fees?*** Yeah, we went through this and paid a lot of money for it. It was not adopted. We are probably the only major city in the state that requires developers to pay all cost up front. Our developers have been willing to continue this and would just as soon not change the system. Therefore, the developer pays residential, collector, and arterial streets up front as a part of the development and then puts that into the price of the housing. The other way is to sell bonds, use impact fees, and charge the bond payments to the property owners. So, we've never had any difficulty. We might get into it in a couple of years for a different reason.

***What do you consider to be the spending priority, maintenance or reconstruction?*** Here you would have to say it is both. Don't forget to make the distinction given the nature of the city how big it is, the fact that there has been a difference in construction. For a few

years there where we didn't meet the formula that the state highway department was using and didn't recognize our difficulty, and part of that which is not necessarily fault of the department is that they were at one time allocating money on a district basis. Well, we are in a district with three or four other counties that goes out into the desert, Alpine, and there is no cars out there. So, when we average that in with us it's 500,000. It reduces a lot of your accounts, and that's one of the things that is being changed. I don't think you can draw the distinction; maintenance is a difficult problem here because of the restrictions on financing. Because if you don't have the suburban cities, this other area to draw on, the Juarez people come over in large numbers, but they live in another country. They don't pay taxes here. They pay sales tax if they buy something, but the sales tax is only \$30 million out of \$164 million of just our general fund budget. So, their contribution...it doesn't mean we dislike them, we love them...I am just saying that in terms of the nature of what they spend, they don't produce that much income for the city. Secondly, if they want to fill out the forms, they're exempt from sales tax. So, for the big stuff they buy, if they fill out the exemption forms, they don't have to pay tax.

**THIS IS NOT TRANSCRIBED FROM A TAPE RECORDING.**

*How would you assess local road conditions?* City streets are in a generally poor condition. The streets weren't ready for the bus system. If Austin is the base for comparison, then El Paso is in poverty. We get \$3.5 million a year for streets since 1986 for rehabilitation and reconstruction. This amount is all that we are able to fund without creating a tax shock problem. The weights and quantity of traffic were not considered when the streets were built. There are eight thousand miles of streets in El Paso. We have a good street layout.

*What percent of maintenance that needs to be done is actually accomplished?* Fifty percent of what is needed. We would have to double the street budget to do all of it. Resurfacing is easy, but what has been annexed has two inches of base with two inches of asphalt. With the increased weights, the base collapses. It collapses before the bond is paid off. Twelve to fourteen years maturity. We expect a twelve to fourteen year life on the street rehabilitation, but the streets need resurfacing before the twelve to fourteen year life is up. So, debt builds up without solving the problem. We need to increase the base from two inches to four or six inches to solve the problem. We need to make major intersections concrete and add bus pads to stay current.

*What do you foresee to be the road conditions in the future?* In ten years, I can't say for sure what the conditions of the streets will be. National policy is shifting to transportation. Hopefully, we will see improvement in five years. Not all the problems will be solved, but hopefully materials will be improved.

## ABSTRACT

**CITY:** Fort Worth  
**OFFICIAL(S)**  
**INTERVIEWED:** M.L. McKean, Transportation and Public Works Coordinator  
 Kay Yount, Administrative Assistant  
**DATE/TIME:** June 8, 1993/1:00 p.m.

<b>ECONOMIC/ REVENUE</b>	The economic climate is stagnant. It is dependent on the defense industry: Bell Helicopter, Lockheed, General Dynamics, and Carswell. They are now using tax evadement incentives to get businesses into Fort Worth. They are expecting a turn around in the next five years. Funding for maintenance is locally obtained. Construction depends on the type of roadway, PASS Projects or CDBG funds. There has been a trend of decreased national and local funds. They have experienced a declining tax base from layoffs and decreasing property values. The amount of money from the Capital Improvements Program and the amount of general revenue allocated toward street maintenance has declined. The 1993 referendum, if passed, will mainly go to intercity streets.
<b>ISTEA FUNDS</b>	They are receiving funds for the rehabilitation of six bridges.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	People perceive that road conditions have improved, but they have actually declined. Priority has been maintenance. They have overlaid the entire business district and the majority of arterials. Street maintenance or reconstruction is based on citizen petition and complaints. The state reported on 40 bridges that needed minor to intermediate service. A very small percentage of the bridges have deteriorated.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	They did use MicroPaver, but it was laid off. It was not perceived to be worth the cost. Also, they laid off the person who kept up with street milage. Any new construction will not be recorded in inventory. The system was used to prioritize streets for repair. They are currently looking at COG for a system that could be funded by ISTEA, but other cities are looking at alternative uses for the funding.
<b>MISC</b>	About 15 years ago, they had no record of how many miles of highway there were in Fort Worth. Mr. McKean hired retired street supervisors to do a feature inventory of streets but not condition. In 1985 and '86, a blue ribbon committee decided to deal with deteriorating street conditions. Based on their report, Paver was selected.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Fort Worth  
**OFFICIAL(S)**  
**INTERVIEWED:** M. L. McKean, Transportation and Public Works Coordinator  
Kay Yount, Administrative Assistant  
**DATE/TIME:** June 8, 1993/1:00 p.m.

*What do you perceive to be the general economic climate in your city?* Stagnant would be optimistic. *Do you attribute this to national, statewide, or local conditions?* We're very dependent on the defense industry, Bell helicopter, Lockheed, General Dynamics, Carswell closing. All of those things have had an impact on everything we do. Probably national and city conditions. A lot of the national will have to do with the defense industry. As far as our tax rate development growth, our tax rates are not as high as our council wants to make it. So in not trying to increase taxes, costs of providing services has increased, we've really cut back our service levels trying to maintain at the same funding. Another problem we've run into is that for years we didn't work hard to get businesses in Ft. Worth, and now we are using a lot of tax evadement incentives to get businesses here. So we are still providing services, but not getting any revenue for those services just yet. That should start turning around in the next two or three years. *What is the current tax rate here?* The highest in Texas.

*Percentage of funding from local, state, and federal:* That has to be broken down into maintenance and construction costs. Nearly 100% of our maintenance funding is obtained from local funds. On construction, it depends on the type of roadway or bridge. We have not had a real big bridge program until recently due to ISTEA funds. Under that, we have now got six bridges scheduled for rehabilitation or reconstruction. Of that, the city pays 20%, and the state and federal government pays 80%. And that is the only bridges that we are actually doing. Roads primarily is local, through bond funds, except for some of the PASS Projects. We get federal funding on that. CDBG (Community Development Block Grant) funds is used for a small portion. That is federal funding for reconstruction. In the past, the city pays for part of the reconstruction and the citizens using it pay for part of it. In selected neighborhoods, CDBG picks up the citizen cost. CDBG is a fund that is targeted to neighborhoods. The Eastwood project is going under, so CDBG is taking over to take over the cost (first time CDBG was used for nonresidential).

*Changes in funding pattern:* Decreased both national and local and I expect to continue in the near future. Sometimes there is a shift in priorities such as this bridge program that we have never had before. But that money comes from somewhere else. So something else



has to suffer when you come in and do that.

***What is your main source of local revenue?*** That is property tax and general obligation bonds as well as sales tax.

***Have you been experiencing a declining tax base?*** Yes, because we've had so many layoffs in the city, property values have gone down. People don't have the money to spend.

***Percentage of funding used for maintenance and/or construction?*** The maintenance fund is decreasing, which is part of our general budget. I looked back at our last three CIP's: in 1986-90, we had a \$115.6 million program for roadways, in 1990, we had a \$20 million program, and this November we are going to be going back for a \$60 million program. General obligation bonds have decreased. Routine maintenance has decreased because general funds declined except for funding from the Transit Authority, but that has decreased too. For several years we had \$1.6 million coming from the general fund and \$3 million coming from Transit Authority (for major maintenance). That was 1987-88 and 1988-89. For 1990-91, it went down to \$1.5 million and \$2.8 million. For 1992, it went down to \$1.2 million and \$2.8 million. So, for last three years, funding for major maintenance (overlays, recycling, concrete restoration) has been decreasing. We levy a sales tax for Transit Authority, and that is used for maintenance on their routes. Street division does the only major maintenance (sealcoating). The funds are separate, and major maintenance is done by contract.

***Allocation of funding for maintenance and reconstruction?*** It has been declining at a uniform rate. They come from different sources. So, we don't do say \$100 million of construction, and 15% of that is maintenance. Maintenance funding is tied directly to general funds and tax base, and that has been decreasing at 5 to 10% for that last several years. Our construction/reconstruction is tied to our bond programs, and as our bond programs stretch themselves out, then there is less funding each year on it.

***Do you have a pavement management system?*** We had one but we laid it all off. ***Why?*** It was funding. It was not perceived by others as a worthwhile benefit for the cost. ***How did you perceive it?*** We were very much against that. We feel that pavement management .... that a city this size has to have a pavement management system to know where and how they are spending their money. Another problem with it is that the pavement management system depends on logic, and the streets get picked on politics. The other problem with it is that we had somebody who knew how many miles of streets we had, and we laid those people off. So, whatever is built from now on, we don't even know the amount of miles except by "guess and by gosh." There is nobody maintaining that database.

***Do you have any hope for reinstatement of the system?*** We are currently looking at Council of Governments, they have some funding that they get from ISTEPA that would be designated for a pavement management system, and we're looking at how COGS is going to utilize that funding (he is on the pavement management committee). We might or might not because there are several cities in north Texas that have different expertise and ideas on how COGS should utilize those funds, and COGS themselves have an idea on how they should utilize those funds. What we would prefer is that we perform the field work of obtaining data for the system and that could even be paid for out of COG funds. Then COG could run it on a master program and have one program that could be the same program throughout the region. Possibly tie it in with the state's pavement management system. ***How expensive is it to use a system like Paver?*** We were using about \$150,000 per year to use Paver. We had five full time people working on it, did surveys, separation of the network, and ran all of the project and network reports. We were using the mainframe and then switched to the MicroPaver. We started out fifteen or sixteen years ago, we didn't know how many miles we had, how much was concrete, how much was asphalt. I hired some retired street supervisors to go out and do a feature inventory: how many miles of road, tell if they were penetration, hot mix, concrete, or what they were. No conditions just pure feature. In 1985 and 86, due to the decline in condition of our roadways, the mayor selected a street and drainage infrastructure blue ribbon committee to see what the problems were and how we were going to attack them. Once they were briefed about the problems, they decided the drainage problems were too big to handle. So, they decided to handle the street problems. One of the recommendations they made was to establish a pavement management system rather than just to do a feature inventory. Based on the report, they interviewed several agencies and picked the Paver. Two reasons: 1) it was not proprietary, and 2) due to the size of the network, we had to use the mainframe. It was cut out two years ago.

***How about the general road conditions?*** The people perceive that they've improved. Overall they have probably decreased looking at central business district, major arterials, collectors, and residential. We have spent a lot of major maintenance money (\$1.3 million and \$3.2 million) went into overlay programs: overlaid the entire central business district, hit the majority of arterial streets. A lot of the major streets people drive on have received better maintenance because more funding has been directed to those areas. Residential streets have not got that, so their condition is still decreasing. There are a lot more residential streets than there are arterials and collectors.

***How do you decide which streets to spend funds on?*** If they (citizens) send in a petition signed by everyone on their street, we are more likely to look at that favorably than we would to somebody that doesn't put anything in there. In the past, Mike had assigned Council Districts to the staff in the Street Division, and we were responsible for recommending the major maintenance to be done in different sections of our Council District. We would select so many lane miles in each Council District each year. Ft. Worth is divided into eight districts. We would sealcoat 150 lane miles a year. We'd

break that down by the number of penetration streets within each district. So, some districts had more lane miles and more sealcoating done, but most of the maintenance is determined by the complaints that come in from the citizens and by the sector supervisors or the supervisors over a particular activity such as asphalt maintenance. Sealcoat is determined by the Street Superintendent. The major maintenance (overlays, concrete restoration) lists are submitted to us, and the Director of Transportation and Public Works and the Deputy Director and myself (M.L. McKean) go out and we determine which ones those are and then we submit those to council. They can change them if they want to, but very seldom do they. There are exceptions to that, it depends on the Councilman from that district, such as district six. We chose streets and she never responded, so we addressed those streets. She said I want this problem addressed and we addressed that. This is done on the type of roadway and the distress that it has (example). Maintenance wise, there is not a whole lot of political input; it is almost all determined by staff and the only limitation we have is funding. One of the factors that determines where it is spent is how much noise the citizens on that street make.

***Have you experienced a substantial change in traffic pattern or traffic mix in the past ten years?*** There has been no change in traffic mix, traffic patterns change with state highway construction. They are tied to development, development on north side. So, there are more people coming down from the north.

***Major projects undertaken:*** Just completing all of our 1990 CIP's. That program was tied to interlocal residential streets. A lot of the 1986 program was local streets. If we get this 1993 referendum, a large portion of it will go to intercity streets. We will be doing some mutual funding on some PASS projects like the widening and reconstruction of Rosedale. Don't have that many large projects until the next CIP. Still four projects from the '86-'88 CIP that have not been constructed. Several that are not constructed from the 1990 CIP; they are going through their designing phases. Hopefully, all of those will be constructed by the end of next year. November bond referendum, if we have it, will allow our designers to design new ones for construction in 1995, 96, 97.

***General view of the streets and bridges in Fort Worth (deteriorated to a poor condition or a failed state)?*** I don't think we can answer that. The state does a bridge survey and they submit the results to us. They gave us information on forty bridges where there was minor to intermediate service required. There were several hundreds of bridges that they look at. So, I would say that, overall, there is a very small percentage of bridges that are deteriorated that would require reconstruction. Widths do not meet standards, so they are being reconstructed. So, the bridge may not be necessarily deteriorating, but it just cannot handle the stress such as the weight restrictions on it.

***Paver system did rank streets and prioritize streets. Did you go by the prioritization?*** On the major maintenance, we used that to reduce the number of streets to look at. It would print out one hundred streets and we would do thirty of those instead of looking at one

thousand. We used it as the first cut and then went out and surveyed those one hundred to determine the thirty.

## ABSTRACT

**CITY:** Fort Worth  
**OFFICIAL(S)**  
**INTERVIEWED:** Mike Groomer, Assistant City Manager  
**DATE/TIME:** June 7, 1993/4:00 p.m.

<b>ECONOMIC/ REVENUE</b>	<p>Economic conditions have been fairly flat since the boom in the 1980's. Conditions have bottomed out and started back up. They have experienced a declining tax base because of decreasing property values. This has probably bottomed out, but they do not expect it to increase very rapidly. Part of the problem is that the financial burden placed on the city by an annexed area exceeds the amount of taxes received from the area. Funding -- 90% local, 5% federal, 5% state. Local funding is from taxes. Ninety five percent of new construction is bond funded. They currently receive \$8 million/year for maintenance and \$20 million/year for reconstruction.</p>
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	<p>In 1985-86, 54% of the roads were in poor condition. In the summer of 1991, 36% were poor (this is with an increase in network). They are currently going to the voters with a 3 year, \$60 million bond program. If it is not successful, that 36% will increase.</p>
<b>PAVEMENT MANAGEMENT SYSTEM</b>	<p>Paver was used until 1991, but it was decided that the money spent on Paver should be used on maintenance. They do hope to reinstall it. Currently, their personnel looks at the streets to determine what stage it is in and what needs to be done. They use this information to put together an annual work program. Citizens complaints and petitions are also considered when prioritizing maintenance.</p>
<b>MISC</b>	<p>Something called Principle Arterial Street Funding was started about 5 years ago. The idea was to connect major federal roads with local ones because it cost less, but the roads now have to be made to federal standards, so it costs more to build them.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Fort Worth  
**OFFICIAL(S)**  
**INTERVIEWED:** Mike Groomer, Assistant City Manager  
**DATE/TIME:** June 7, 1993/4:00 p.m.

**THIS IS NOT TRANSCRIBED FROM A TAPE RECORDING**

**General Economic Conditions:** Economic conditions have been fairly flat since the boom in the 1980's; Conditions have bottomed out and started back up. They assumed a lot of debt in the 1980's. Had about a 10% increase in infrastructure in the early 1980's. Have experienced a declining tax base because property values are going down. This has probably bottomed out, but they do not expect it to increase very rapidly. Part of the problem is that although when the city annexes it should pick up tax base, it is not always a dollar for dollar increase. In other words, the financial burden placed on the city by an annexed area may exceed the amount of taxes received from the area.

**Percent Funding:** Rough guess would be 90% local, 5% federal, 5% state. Principal arterial street funding -- started about five years ago. The idea was good -- to connect major federal roads with local ones because it cost less. But they decided to make the roads meet federal standards, so now it cost more to build them. In the five years it has been around, only two projects are going.

**Local Funding:** Local funding is completely from taxes (fines, fees, and bonds). General Obligation Bonds -- twenty year bonds. Ninety-five percent of new construction is bond funded. Maintenance funding comes from the general fund. They have to fight to keep basic funding for basic services. They now receive \$8 million a year for maintenance and \$20 million a year for replacement of existing streets. City Council makes the final decisions on the allocation of funds, but the City Manager and department heads have a big role. They will present voters with a bond program this fall. It is a three year, \$60 million program.

If a street borders another city, the cost of maintenance is usually shared 50/50, even if the street is not. On some projects, the county will provide the labor if the city provides the materials.

***Pavement Management System:*** Paver was used in Ft. Worth to evaluate pavement conditions until 1991, but it cost too much, so that money is now used for maintenance. It was expensive to gather and enter data for Paver but they do hope to reinstall it. Their current method for pavement management involves putting together an annual work program. Citizens complaints are taken into account. They use complaints and petitions as a factor in deciding which streets to repair. Experienced personnel can look at streets and determine what stage the road is in and what needs to be done.

***Road Conditions:*** In 1985-86, 54% of their roads were in poor condition. In the summer of 1991, 36% of the roads were poor, and they had improved good and fair roads. This is also with an increase in their network. If the bond election is not successful, the 36% will increase. In the last few years, more rain has deteriorated the older roads.

***Metro System:*** Transport receives a ½¢ sales tax. In the last two years, they have provided \$6 million from that tax for maintenance. A new contract will provide about \$3 million per year for maintenance (this is about 15% of what Transport receives from the ½¢ tax).

## ABSTRACT

**CITY:** Garland  
**OFFICIAL(S)**  
**INTERVIEWED:** Dale McCreary, Director of Street Department  
**DATE/TIME:** June 16, 1993/1:00 p.m.

<b>ECONOMIC/ REVENUE</b>	The city has suffered economically in the last 10 years, but they are seeing some improvement. Funding is 98% local, 2% federal (like CDBG). The funding level in the street department has dropped in the last several years. They have received the same grant from the federal government for the last several years, but there have been more projects in the city, so money has been taken away from roads and bridges. The main source of local revenue is property tax and sales tax. Bond funds are used to widen and replace asphalt streets. There is some money coming in from the bus system for the maintenance of streets on their routes.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	They usually have more D streets than money available. Only about 20% of the reconstruction of D streets that needs to be done actually gets done. They have made some progress in convincing city council that they need to try to keep the streets that are A's and B's in good condition. Road conditions are fairly good overall, but they do have a fairly old road system which may cause problems later.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	A street inventory is done every year, based on Dallas' program. They rank streets from A to D, D being the worst. Four people rank D streets from 1 to 5, 5 being the worst. They add the four scores together and then begin repair on the streets that get a 20. They have looked at some computer software, but have not found anything that they feel could help them more than what they are doing now.



**INTERVIEW DATA FOR TOP 25 CITIES  
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PROJECT 1307**

**CITY:** Garland  
**OFFICIAL(S)**  
**INTERVIEWED:** Dale McCreary, Director of Street Department  
**DATE/TIME:** June 16, 1993/1:00 p.m.

*What do you perceive to be the economic climate in Garland? Do you attribute this to national, state-wide, or local conditions?* I think that we are probably like everybody else. The city has probably suffered in the last ten years or so. I think we are seeing some improvement. At least from what they tell us, we are. I think we see more building going on now than we have in the past few years. I think that right now, the climate is a little better than it has been. It will probably continue to improve.

*What percentage of the funding for roads and bridges is obtained from local, state, and federal sources?* I guess most of our funding is probably local funding. Percentage wise, I don't know. Ninety-eight percent is local funding. We pick up a little bit of extra money here in our department as far as federal funds go. We get some CDBG funding. It is just small amounts. *What do you anticipate in the way of future funding? Do you think that the majority of it will continue to be local?* I would think so. Yes. At least in our department, we have seen our funding level drop in the last several years. I guess that we will continue to get a little bit of (federal) money each year but...There are more projects within the city...that is picking up...some additional funding that we used to get here in our department. I know that at one time we ended up getting \$200-300,000 a year, and now we are down to \$50-75,000 a year. *It has been declining?* Yes, but I'm not sure that it is from the federal government standpoint as much as there are more projects in the city now. We are kind of getting some of ours taken away. I think we received the same grant from the feds for the past several years. Not much of an increase there; it has been pretty steady.

*What is your main source of local revenue?* Property taxes. I guess that sales tax is part of it.

*How about funding for street and bridge maintenance? Is that from the general fund or bond sales?* Yeah. It is really all from the general fund in our department. What we do is basically maintenance of existing streets. You know, asphalt streets or concrete streets. Our Engineering Department will use bond funds to widen and replace asphalt streets. *Routine and preventative maintenance comes from the general fund?* Yes.

***How do you determine which streets or bridges will receive maintenance?*** We do a street inventory each year. It is basically a program that we put into place in '79 or '80. We kind of based ours on what the City of Dallas does. Maybe not to the extent that they carry theirs out to, but we use the same criteria in ranking our streets from A to D, D being the worst ones. We usually have more D streets than money available. Then, we just have an in-house process in which we go back and look at the D streets and try to determine from that a ranking system to determine the streets that we will work on each year. Dale and myself and two of the other guys in the office, we all go out and review the D streets, and then we rank them accordingly. Then we get back together, and we assign each street a number from 1 to 5, 5 being the worst. Whichever streets rank out and get a 20, that is one of the streets we work on first. We do it like that. ***This is approved by the City Council once you have made your choices?*** Yes. We submit a list to them and they look at it and pretty much give an okay on it.

***What percentage of the maintenance and reconstruction that needs to be done in a given year are you able to fund and accomplish?*** That is a good question. I really haven't put any numbers to that. I'm trying to recall about how many miles we are doing a year. We do about 8 to 10 miles of reconstruction. We have probably 40-something miles of D streets. Twenty percent maybe, or something like that. ***That is 20% of the reconstruction of the D streets that needs to be done?*** Right. Of course, we have concrete and asphalt streets here in the city. We reconstruct or recycle (we have a recycling machine) our asphalt streets. Our concrete streets have traditionally been given 1.5 overlay or something like that. We are going more now to concrete replacement of those streets to upgrade them instead of asphalt. It is all included in that 20%.

***Have you ever considered using a computerized pavement management system as compared to just taking inventory?*** We have never done it that way. We basically have criteria established that says this is an A street, this is a B street...I don't know if you have ever talked to Dallas, but it is similar to what they do. As far as a pavement management system, we haven't ever done anything with that. We had some people with a consulting firm come out one time. They did about 25 miles of our streets. They did some different tests and so on and gave us some stuff like that. You can save so much money doing this on the street and so on. Reconstruction options. But, we have never really gone into that in great detail. We have looked at some software that has come out in the last year or two. We really have not found anything that we felt could help us better than what we are doing now. (Interviewee then questions Interviewers about pavement management systems.) I think that we got the software from you (indicating other man present at interview) that last time on diskette from Kansas or somewhere. It just didn't look like anything that would benefit us more than what we already had in place. We have just now, this budget year, convinced the Council to put on a couple of people to do some cracksealing and things like that. We are finally starting to see some progress. We have been looking at the number of square yards we replace each year and the number of new streets coming in to it. I think that we have made some progress in being able to tell them that we need to start worrying

about those streets that are A's and B's. We need to keep them that way. I hope that we are going to see a turnaround here.

***What is the average age of the streets in Garland? Do you find that you have a lot of older streets?*** Yeah, that is something that we are just starting to address. We are getting ready to change our inventory system a little bit where we add construction dates. We just did some work on our alleys and found that a lot of our alleys are in the over twenty year category. They are going to be needing a lot of work done. I think that it is probably the same way on our streets. We have a fairly old system out here, at least in the old downtown area.

***Has there been any significant changes in traffic pattern and/or traffic mix? Has there been any new industry that has brought in a lot of new traffic?*** DART, I guess. DART has really impacted our...Other than that, just like everybody else, you experience growth each year...a lot of new vehicles and you have to upgrade the streets to handle that. That is really what our bond program addresses. I am sure that we have seen increases in traffic over the last couple of years. ***On the DART system, do you see any funds from that system to maintain the roads that they use?*** I know that they have changed some intersections and things to accommodate bus turning. They just didn't have that turning radius. I think there is some money coming back in also for maintenance of streets.

***What is your general impression of the street conditions? Would you say that they are in fair condition or good condition compared to the surrounding area?*** That is kind of a hard question, but I think that our streets are in a fairly good category, overall. ***Do you see funding for preventative maintenance getting any better?*** I think that it will be fairly the same. As far as our asphalt streets go, the reconstruction program that we have now I see fairly staying the same. As far as our concrete streets, we have a new program about to go into place. The Council is supposedly going to sign off on it in July. We are going to take some initial funds to add to our budget for concrete streets and alleys. Initially, it is going to be for alleys, but I think that some of it will eventually be earmarked for concrete streets. Our asphalt street work will probably stay about where it is now.

***Have you recently undertaken any major projects?*** Not really anything in-house. We are pretty much doing what we have been doing on reconstruction. With the new program going into place, we are getting ready to do some new things with alley reconstruction. It will be done in-house. I think that will eventually spill into the streets. How far down the road that is, I really don't know. ***How about any project with the federal government or state or county?*** That is probably addressed by Engineering than to us. They really deal with major reconstruction like that. I know that Dallas County has had some bond programs there in the last few years. There will be some money coming in for some major roads. Yeah, Highway 78 which was just completed by the state. I guess 190, hopefully.

## ABSTRACT

**CITY:** Grand Prairie  
**OFFICIAL(S)**  
**INTERVIEWED:** Craig Farmer, Deputy City Manager  
**DATE/TIME:** June 9, 1993/4:00 p.m.

<b>ECONOMIC/ REVENUE</b>	<p>They are experiencing a declining tax base. They have been having to lay off people. This year they expect another 2-3% decline in property values. Property tax is the main source of local revenue. They raised user fees as much as possible. Mr. Farmer attributes this situation to statewide conditions (savings and loans). Federal and state funds are being used to rebuild two I30 interchanges. New roads are being built with bonds or through developer contribution. Money for maintenance and reconstruction comes from the general fund.</p>
<b>ISTEA FUNDS</b>	<p>More competition to get funds through COG. The process has become more political. They compete with cities at the Regional Transportation Council; it has a board with representatives from each city in the region. Michael Morris is the head of the Transportation Department of the COG.</p>
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	<p>Road conditions are fairly good. Almost all of the roads are concrete, which lasts twice as long as asphalt. They design all streets to state standards for future state funds. They are receiving funds for about 80% of what needs to be done. They are barely keeping up with maintenance. It could be worse 15 years from now when roads reach their design life. They are currently building Trendy Blvd in the north end for the new racetrack, a \$7 million project. They are also constructing a new interchange at Myers Rd., a \$23 million project.</p>
<b>PAVEMENT MANAGEMENT SYSTEM</b>	<p>They are currently using a system that prioritizes streets. Streets are visually inspected and updated on the computer.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Grand Prairie  
**OFFICIAL(S)**  
**INTERVIEWED:** Craig Farmer, Deputy City Manager  
**DATE/TIME:** June 9, 1993/4:00 p.m.

***General economic climate?*** Still a little bit of a falling tax base. It is a service reduction mode for the city. We are having to lay people off. We are pretty lean. Property values, house values are still declining. Dallas just recently stabilized a little bit. They declined a lot faster than we did. So if you look at the curves, we are still ahead of them property value wise, but we are still declining. This year it looks like another 2-3% decline in the values. Just like a business, if you have a decrease in revenues coming in, you have to offset that. We have raised fees as much as we can, so....Business wise we are growing to some extent, but it is not like it was during the heyday, obviously. Single family permits are in the three hundred to four hundred a year range, which is about half of what they were previously. Commercial construction is down substantially. I see it going up in the future. We have the new racetrack, the first class one track in Texas. It is probably one of the best in the country. That will make some things happen in the northern end of town. We have also done some pretty good industrial expansions got some people tax abatements. I expect our permits and our growth to turn around. We will never see what we saw in the eighties. I think that it is bottoming out. Understand now that because it is tax rolls, it is going to take a couple of years for that to turn around and reflect the comparables now. It takes some time to work its way through the system. So even though the economy is bottoming out to some extent, our property values aren't going to pick back up for a while. That has implications for our revenue stream.

***Do you attribute this to state-wide or local conditions?*** The savings and loans issues....It is a state-wide issue. I mean Austin and a few places are exempt, but I don't know that you can attribute it to the national economy.

***What about funding for roads and bridges? Do you get any federal or state funds?*** We get quite a bit of federal and state funds. I don't have exact numbers for you, but we are rebuilding two interchanges on I30 which is federal, obviously. We've got a major freeway going through town, 161, that is caught up in the courts right now, but that will be federal. We got some PASS programs and things.

***Are local funds for roads mainly from property and sales taxes?*** Property taxes almost entirely. Anything that is not a major arterial or freeway is going to be local funding....or

developer. We make them (developer) build a lot of them.

***Do you contract out for total reconstruction?*** No, we have our own crews and reconstruct everything except state maintained facilities. We have concrete crews that do nothing but maintenance or rehabilitation. We are pretty aggressive in making sure we don't cut those crews. All of our roads are concrete. The water and the concrete breaks up. You have to keep after it. We have very few asphalt roads. We are very aggressive about trying to maintain our streets.

***What changes in funding do you foresee?*** The new ISTEA legislation affected how federal funding is handled. It goes through our Council of Governments now. Freeways and those kinds of facilities, I think there is going to be a lot more intergovernmental competition between cities at the Council of Governments level to get those federal funds. It used to be everybody just ran down to the Highway Commission in Austin and competed there. This last year the whole process was changed with the ISTEA legislation. The Council of Governments has jurisdiction over a pretty good size pot. It was kind of a fiasco trying to compete for funds at the Council of Governments. I think that it is going to get more and more political all the time at the COG level or the MPO (Metropolitan Planning Organization) level. We have to meet tomorrow morning. 360 South, the highway department has delayed that for two years because they don't have the funding even though they promised us they would start building it if we put up certain monies. So we went out and bought the right-of-way, and we put up money for our share. Then the highway department is not fulfilling their end of the bargain. We are meeting with the mayors of five cities tomorrow to protest that and fight with the highway department. But all that is taking place at the COG level, which is a new deal. You have a regional board of the transportation commission called the RTC, and it has a lot of jurisdiction now. You have city representatives on that board. So it is going to be a lot more political process to get federal funds and state funds for your city than it used to be. It used to be you just dealt with the Highway Commission, so you didn't argue with Arlington, you didn't argue with Dallas, you just went down there and tried to get your projects. Now you have to compete with those cities at the Regional Transportation Council, so you are going to have to build coalitions with other cities to try to get the votes on the council. We didn't fare too well in the last go round, although I don't think that any city did. I think everybody was disappointed. I think that is a problem. Long term, we have to build coalitions with other cities to be able to get anything done. If you are a city that has no friends, you are going to be in deep trouble, whereas in the old days, a city could be on its own. I know Dallas is really feeling the pinch. Population wise, they don't have as many votes as you would think. If it were done by population, they would have almost the entire board. They have a limited number of votes on the RTC, so they are upset that they don't have more clout.

***How is the number of representatives for each city determined?*** It is just the bylaws of the board. They just revised it. Our representative is us and Mansfield. Arlington has

one representative; Dallas has four; Carrollton and Farmers Branch share one. Every region in the state has a Council of Governments. It is more or less voluntary, except that they have the grant review authority of the federal government. The Metroplex has probably the strongest COG in the state, if not the country. They are responsible for coordinating roads to make sure that the roads go through cities, line up, and are the same size. So, they do all of our regional mapping and regional transportation work and regional drainage studies. That is the Council of Governments. The guy that heads that up is Michael Morris; I would really suggest you visit with him. He is the head of the Transportation Department of the COG. The COG came into being in 1972.

***Is it only with the ISTEA Act that the COG has become powerful?*** Before that, the Regional Transportation Council of the COG was a voluntary organization that just coordinated the work and got the cities to work together. Now, they have been given full authority over certain types of federal funding to say yes or no. The Highway Department still has some control over some of the funds, but for the rest of them, they have to go to the RTC. So, it is affecting how they get funding also. I think that is a long term issue. You might get Michael Morris to also explain to you how in the old days, the highway department used to overfund projects. They would prioritize and rank all the projects, just put them on the list so that they would have two or three times as many projects as they had money. They figured certain projects would fall out. They now have a new policy that they won't do more than 100%. So if you don't make that list...they have a list of only what they can fund. If a project doesn't go...in the old days the money just used to slip down to the next project. Well, now it doesn't, so everybody is still duking it out. So they have changed how they fund things. It used to be that they would tell you that they could get to your project in, say, 1996. Now they just say you aren't funded, and we don't know when you will be. I liked the old way.

***Does funding for maintenance and construction come from different sources?*** Again, it depends on the type of road. If it is federal or state, they will maintain it totally. If it is local roads, we do it out of the general fund. We build new roads with bond money or developer contribution. As far as maintenance or reconstruction, that is entirely out of the general fund from property taxes.

***What are the road conditions in Grand Prairie?*** I think overall they are fairly good. We get a few complaints, but it isn't like the pothole deals you have back East where you adopt a pothole. Almost all of our roads are concrete, whereas, Arlington does asphalt. They have had to do a lot more construction on theirs. Our roads last about twice as long.

***Do you have a pavement management system?*** Yes, we have all of the roads prioritized as far as when they need to come up. It is on computer. We have been using this for awhile. They visually inspect and put them on the list. So it isn't an issue of the last time we went out and fixed something....the computer brings it up automatically. It is our people visually observing and saying, "This is a problem." We'll put it on the list. Each

year we adopt a list of roads that we are going to rehab or resurface. That is a running list. We have a capital improvement program we adopt annually, and that lists all the roads and who funds it.

***Are the streets divided into sectors?*** We have districts that the council members are elected from, and they watch each other to make sure nobody is getting more streets in their area than they do. But we don't keep track other than that. The roads are in great shape in the newer sections of town, so you can't spend the money equally throughout the city. You are going to spend more money for rehabilitation in the older sections.

***Any substantial changes in traffic pattern or mix?*** It is just growing. We have a computer model. The COG models the entire region; they have a computer model for everybody. We have our own subsets of that on our own computer. They have everybody in the region on that and they monitor it. Basically, it is building on the main freeways. We are still growing, just not quite as fast.

The state has a certain design standard, and cities may have a different one. The only real issue you run into is if you are going to use state money, the project has to be designed to state standards. So if you didn't do that, you got a problem. We design most of ours to state standards if we are trying for state money. But I know that at the COG, a lot of projects were funded. They go and say the plans are done, we are ready to build it, give us the money. The COG says, "Yes, we will fund it," and then it turns out that they didn't design it to state standards so that money has to be thrown back into the pot. I don't know that is a big problem for most cities.

***What about new construction projects?*** We have a number of projects that we are building throughout the city. Trendy Boulevard, way up north, we are spending about \$7 million to build that for the new racetrack. The two interchanges...the one at Beltline is about \$5.5 million, mostly highway department on that one, and there is a brand new interchange at Meyers Road that was never there before at \$23 million. That is under construction. We have a road down south called 1382 that reaches to I20; they are in the process of trying to finalize plans on that one. That is going to be about \$6 million. The county is in the process of working on Jefferson Boulevard; they haven't finished designing that. That will be another multimillion dollar project between Dallas and Grand Prairie.

***What portion of the maintenance that needs to be done each year are you able to pay for? Is there any shortfall?*** We are experiencing some, but we are about 80% funded on what we really need to maintain.

***You don't really see the condition of your roads as being a big problem right now?*** At this point, we are barely keeping up. It could get worse if the budget continues to deteriorate and we have to lay off some of the crews. At this point, I would say that we are barely keeping up with maintenance. It has not deteriorated to the point that we get a



lot of complaints. We made a commitment to keep up with this. But fifteen years from now when all of the roads start wearing out, I don't know what the situation will be. Our need is probably for new things...roads....help participating in some of the new things that need to be built. I think that you are going to find a different situation in the inner city of Dallas and places like that where everything is old. Half of Grand Prairie is less than fifteen years old. That is probably an important thing to note. It is the older cities that have roads that are forty or fifty years old....you have a different situation. Everything is maintenance there.

*What is the expected life of a concrete road?* About twenty years; asphalt is about ten without some kind of overlay or maintenance. You can extend that to some extent by keeping up with patching, taking out the bad sections.

*Are you able to do that kind of maintenance right now?* We are doing that, but at some point, you just have to redo the road. We have had some that we have had to totally redo.

## ABSTRACT

**CITY:** Grand Prairie  
**OFFICIAL(S)**  
**INTERVIEWED:** Jim McMeans, Director of Public Works  
**DATE/TIME:** June 10, 1993/9:00 a.m.

ECONOMIC/ REVENUE	State funds are received to build new roads, PASS projects. Dallas County also raises funds for capital improvements. Over a five year period, they have raised \$180 to 190 million. Mr. McMeans was not aware of any state or federal funds for maintenance. He said that CDBG funds have declined over the past few years.
ISTEA FUNDS	Some of these funds have been allocated.
ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND	Road conditions, compared to surrounding areas, are below average. In five years, the conditions will have improved. The new 80,000 lbs. truck weight limits have had a significant impact on the streets in the industrial district. They have just completed a \$3 million project which completes an east/west thoroughfare, Trinity Blvd.
PAVEMENT MANAGEMENT SYSTEM	A very rudimentary system is used. It is a crude system that is primarily used to inventory the streets. Mr. McMeans said that he doesn't even claim that they have a pavement management system. He also mentioned the move in the region for a common system to be used through the North Central Texas COG.
MISC	The industrial district has grown about 50% in the past ten years. He mentioned that about 35% of the total vehicle miles in the state are traveled on local roads. He is in favor of cities getting a portion of the gas tax to maintain streets. Other states that have this type of legislation require justification of the use of gas tax funds by using a pavement management system. Grand Prairie has a major thoroughfare plan.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Grand Prairie  
**OFFICIAL(S)**  
**INTERVIEWED:** Jim McMeans, Director of Public Works  
**DATE/TIME:** 10 June 1993/ 9:00 a.m.

***What percentage of your funding is obtained from local, state, and federal sources?*** For selected projects, we do get state funds such as the PASS projects. Those are state funds to build new roads.

***Are those state maintained or locally maintained?*** Locally maintained. In our particular case, it's an option that's with a local entity. We also have county funds. Dallas County has a fairly significant bond program. They do capital improvements of primarily roads in the Dallas County area. They allocated, over a five year period, \$188 to 190 million, I think.

***Is that for city or county maintained roads?*** These are roads that are negotiated with the county in the preparation of the bond election and selected ultimately by the county commissioners for rehabilitation, and then built by the county, then maintained by the cities. Ya'll may want to put on your list to interview a fellow named Bud Beane who is the Director of Public Works for Dallas County.

***What about state and federal funding for any local projects?*** We do get some state funds for projects. They're actually state funds that are allocated to state designated routes, farm to market roads. We had a program on in 1982. We also have some of the new ISTEA funds that are going to be available to the cities. We've got some of those allocated. A lot of this stuff...have ya'll talked to Rich Larkins yet? Is he on your list? ***(We answer: "No, we're conducting two interviews in each city. Someone from the city manager's office and then someone from transportation or public works.")*** Okay. ***(We got additional information on Mr. Larkins; he is the director of transportation.)*** He and I both share some of the transportation responsibilities. He's probably a little more involved in the funding mechanisms ya'll are interested in.

***Is state or federal money ever available for maintenance?*** No, not for us. I am not aware of any state or federal funds available for maintenance. That's correct.

***Do you have a pavement management system?*** Mr. Farmer said you did have one, but it hasn't been used for quite some time. It's a very rudimentary one. We aren't real

satisfied with it. It's a crude pavement management system (PMS). It's more of just an inventory than it is a pavement management system. We are aware of good PMS, and ours is not. I don't even claim that we have one. We have a street inventory system. It has some crude ratings associated with it, but it's one of our strong interest. In fact, there is a move in the region to get a common PMS underway through the North Central Texas COG. It's different cities working together on a task force to develop a PMS which we could contract for commonly and then share databases, share resources, and share it as a project. We can all talk about the same kind of criteria.

***When do you think any decisions will be made about that?*** Well, it will probably be a couple of years; that's the time it takes them for these kind of processes. It could occur faster, but I suspect realistically that it's two years away. Some of that is mandated through the highway department through ISTEA. There is a feeling that it will spin off to local governments to be responsible for local roadway networks.

***What is your general impression of road conditions?*** In our city, I'd say they're fair. ***What's your scale? (We answer... "that's a difficult question.") Say, in comparison to surrounding cities: Fort Worth, Arlington, Irving?*** I'd say we're a little below average.

***Do you think this will continue or do you think road conditions will improve?*** We are working hard to get our roadways improved. Substantial amounts of dollars have been allocated to it and various programs. We're certainly working toward that. Now, when you say in the future, are you talking about one year or two, five years? I'm talking five years from now.

***Has there been any change in traffic patterns and/or traffic mix?*** We have a lot of truck traffic in Grand Prairie, in our industrial district. We see that as a continuing pattern. We see that the heavier truck loads is having a real significant impact on roads. The 80,000 pound limits that have been approved have had a real significant impact.

***You mentioned the industrial district, has that grown over the past ten years?*** Yes. ***By what amount?*** I'd say we've had a 50% increase in our industrial area over the last ten years. Primarily on the western half of our city.

***What are some of the major road and bridge projects you have undertaken? (He asks us...)*** Well, major roadway improvement projects? Is that what you're looking for? ***(We answer... "yes.")*** Ya'lls' questions are so general and open ended I can't figure out where you're focusing on. Is this just a survey to have a bunch of answers? I am not being critical, but you don't even say what roads. Well, I can name roads, but they don't mean a darn thing to ya'll. Do you want limits? Do you want dollars? Do you want traffic volumes? ***(We answer... "Yes, we want some sort of idea how much you spend on reconstruction, if you are you able to meet your financial needs as far as maintaining your roads. Or, if they are continually deteriorating, and you just don't have funds at***

*the local level to do anything about it.*") Yeah, I've been an advocate of sharing the gasoline tax with the highway department for several years, like they do in California, justifying based on a PMS analysis cause, as you all may be aware, there is about 35% of the total vehicle miles in the state traveled on local roads, maybe even more than that. To me, there's some very strong justification in taking a portion of the gas taxes that is generated on the local streets and giving it back to the cities and let the cities do maintenance, not capital improvement, but maintenance of their roadway system.

*Is there enabling legislation in place that would allow a portion of it to go to cities?* No, it's strongly opposed by the highway department.

*Has anyone lobbied at all for this legislation?* Yes, but it's strongly opposed by the highway department. (laughing...) Probably TTI won't ever be asked to do that kind of study cause I know where ya'lls' money comes from.

*Why is the highway department so strongly opposed?* Cause it's their source of funding. They don't want to share it with anybody.

Gas tax: It's commonly used in other states. It works very effectively. Municipalities or counties that use gas tax revenue have to justify their expenditures using a pavement management system. It's done through a coordinated basis in California; it's a big part of the local roadway funding out there for maintenance. It's used in Arkansas. We've done a little research, not exhausting. It does bite into the golden goose that works for the highway department. They're opposed to even talking about it because it's a threat to them. So, they don't even consider the possibility of sharing any of the revenues that are generated by road use taxes and road use fees with local municipalities.

*Is there any organized group lobbying for this legislation?* No, there's probably just a desperate group of people around the state like the Austin people and myself, some people in North Dallas, some Fort Worth people who talked about it. There's some people in the legislature who have apparently lobbied for it, but it's a very difficult thing to get started. You've got the Good Roads Association who oppose it, truckers who oppose it, all those groups are very strong lobbyists. Those oppose any attempt to reduce taxes that are allocated to the highway department. I think one of the things that those of us who advocate that recognize is that we can't take anything away from the highway department. We're gonna have to get an authorization for a supplemental resource. They are opposed to that because they think that decreases their ability to increase their revenues.

*Is there a chance this type of legislation would pass?* There's a definite chance. I think in the next five years we'll see it. I think it's crazy not to have it, particularly good pavement management systems. We're talking amongst the cities, organized effort through our legislators, I think it's gonna come. I think it's gonna be a tough battle. Some of the heads are rolling in Austin in the highway department now, you know the old standards

that use to prevail are going to be subject to change. The governor is making a very dramatic change in the administration of the highway department right now. I guess ya'll are aware of that. That's going to have a significant effect. At least, you're going to have some new people there who won't have the same old ideas. I'm not saying they're going to have better ideas, they just won't have the same old ideas. I'm looking forward to that. I think I am. You never know what change is going to bring.

Okay, back to roads...yeah we've done a lot of roads. We've got \$2.5 million of road under construction. We've just completed another \$3 million of road which is going to be a major east/west thoroughfare. We are planning with the county, the third extension of that road, that's going to be a connector to Fort Worth and the north end of the city. It's called Trinity Boulevard. We're working on a lot of street rehabilitation programs, reconstructing existing residential streets throughout the city. Through our bond program, within the last two years, we've completed South Beltline Road, which is about a four or five mile stretch of divided thoroughfare, a north/south artery through the city. We've done a lot of intersection improvements completed within the last year. Right now, we're aimed at mobility improvement congestion point type of things. We are doing a lot of traffic signalization improvements right now that are currently under construction at priority locations around the city. We have got two major interchanges under construction right now. It's funded by the state, but the city had to fund portions of the cost of those to provide the state the incentive to go ahead with the large road interchange. Over here on I30 is under construction right now. It's scheduled for completion in early 1995. The Beltline Road/I30 interchange is under construction, and that's scheduled for completion in late 1994. Those are basically diamond interchanges replacing...Myers Road is adding diamond interchange connections. Beltline road is eliminating the old turnpike loop connections. We're responsible for the utility relocations, right-of-way acquisition and things like that, things that are connected to construction. In the case of the Myers Road, we actually contributed \$2 million to the cost of that interchange to get the state to do it. We've got others in the planning stages. We've got projects that we're going to be doing with our Community Development Block Grant. I forgot about that, that is a little bit of federal funding that we use...a very small amount. We've got about \$200,000 in CDBG funds that will be used for roadway construction and roadway improvements this next year; that's kind of new for us. We have been using CDBG funds for housing rehabilitation. We've made a policy change to put a little bit more into infrastructure.

*How long have CDBG funds been available?* About fifteen years.

*Over that time have those funds increased, declined, or remained relatively stagnant?* They've gone down. It's varied, depending on national politics, but by and large that program has been diminished. I can't remember what administration it came in under. Cities were getting a block of money that they could make their own decision about what to do with the money to meet their local needs, and administered through HUD. As time has gone on, the program has diminished, particularly under the Reagan years. I think it

has come up just a tad, but there's a lot of strings attached. It has to be spent primarily on low to moderate income areas, and it has to show benefit to low to moderate income houses and residences. You have to be able to demonstrate that.

***Do you have a thoroughfare plan?*** Yes, and we have a capital projects budget. We do adopt each year a capital projects budget; within that budget is a strategy for improvements in each of our funding areas. This could be put on a map, and you can show where the improvements are. We do have one when we make our presentation to the council, but that's probably as close to a grand design of strategic improvements as we would have.

Decisions are always controlled by dollars. They're also controlled by developer initiatives too, because one of the primary mechanisms for getting roadways built is by developer initiatives.

***Do developers put in the roads?*** You bet. I wouldn't say universally, but it's common. Development has to include the roadway systems that support the development...the water and sewer to support it, the drainage system, and so forth. Sometimes cities share in the oversize cost of the roadway, but the roadway associated with it needs to be rolled into the cost of the property, and that cost paid by the ultimate purchasers or users of that property whether it's residential, commercial, or whatever.

## ABSTRACT

**CITY:** Houston  
**OFFICIAL(S)**  
**INTERVIEWED:** Jimmie Schindewolf, Director of Public Works and Engineering  
 Chief of Staff to the Mayor  
**DATE/TIME:** August 4, 1993/11:30 a.m.

ECONOMIC/ REVENUE	Houston has diversified its economy over the past several years to reduce its dependency on the oil and gas industry. They have experienced modest economic growth over the last year and expect this trend to continue. Employment has an average annual growth rate of 2.8%. There was a 6% growth in the construction industry over the last year. Their tax base declined from FY86 to FY91 but is now increasing. Maintenance funds come from the general fund, while bond money is used for construction/reconstruction. Metro provides them with some money for maintenance, but they are getting ready to go to them for additional money .
ISTEA FUNDS	Mr. Schindewolf feels that ISTEA is going to have the impact of lessening the amount of federal money received by the City of Houston for street construction. They may receive money for construction of things such as bike lanes.
RELATION WITH LOCAL MPO	Mr. Schindewolf is a member of the transportation policy council. Their relationship with the Houston/Galveston Area Council (HGAC) through the Transportation Policy Council is excellent.
ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND	Mr. Schindewolf was the Director of Public Works from 1977 to 1983 and then returned in 1992. During the time that he was gone, the condition of the streets deteriorated greatly due to severe budget cuts. A large amount of money has been put into the street maintenance program during this administration. Road conditions are much better than they were two or three years ago, but they are not as good as they were in 1980. They are projecting that in five years they can have their streets in good condition.
PAVEMENT MANAGEMENT SYSTEM	The city council just approved a contract for \$1 million to establish a program.
MISC	They have a very unique mix of transportation oriented officials. "We have a lot of people who really know a lot about transportation and the importance thereof."



**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Houston  
**OFFICIAL(S)**  
**INTERVIEWED:** Jimmie Schindewolf, Director of Public Works and Engineering  
Chief of Staff to the Mayor  
**DATE/TIME:** September 1, 1993/10:00 a.m.

*General Economic Climate, Funding, Tax Base* - See attached information in Houston's folder.

*What effect, if any, has ISTEA had on your city?* It appears that the ISTEA legislation...and again, a lot of this is in its formative stages right now. It has not been finalized and we are still feeling our way through the process. But on a local level, from the Houston standpoint, I think it is going to have the impact of lessening the amount of federal money received by the City of Houston for street construction. Now there's the possibility that we may get more federal money for construction of such things as bike lanes. We are going to get ready to make application to the ISTEA process for funding of a comprehensive "hike and bike" program here in the city. So we hope that we will benefit from the ISTEA program through that particular enhancement program. We do know that we are going to see a diminished amount of federal money made available to us for street construction -- no doubt about that. On a local level, that amount of money allocated for the Houston metropolitan area was greatly decreased by the Highway Administration from \$390 million to \$307 million. I don't know if that is a result of ISTEA or if that is just a result of decisions made by the people in Austin. We are not pleased by that, but that's a political decision, and I probably shouldn't comment on that.

*How is your relationship with your local MPO?* Excellent. In fact, I am a member of the Transportation Policy Council. We have three representatives, and I am one of them. The other two are Councilman Jim Greenwood (Vice Chairman of the Transportation Policy Council) and Councilman John Goodner (Past President of the Transportation Policy Council). So, our relationship with the Houston/Galveston Area Council (HGAC) through the Transportation Policy Council is excellent. We are very fortunate that the staff person over at HGAC, Alan Clark, who heads that program, is second to none as far as I'm concerned. He is really, really, really knowledgeable and has helped this entire area work our way through the ISTEA program. It's been very complicated, very difficult to do because the Feds were writing the rules and regulations while we had deadlines here that we absolutely had to meet; at the same time, they didn't have the rules and regulations

formulated. So I think Alan Clark has spent a lot of time writing their regulations for them. So I think from our perspective, HGAC has done an excellent job, particularly Alan Clark. Chris Olafson is the guy over at District 12 that is in charge of planning. He is the one that is responsible for TxDOT and its compliance with ISTEA. He is the person with traffic statistics. He can tell you what is happening locally as far as traffic management goes. There is a real emphasis in the Houston Metropolitan area as far as traffic management. We are computerizing our traffic signal systems. The highway department is doing the same thing. There is actually an interlocal agreement which has been entered into by TxDOT, the City of Houston, Metro, and Harris County. We are putting in a Regional Traffic Management Program where we are working jointly together.....it's the first of its kind in the nation. And we're also building.....we will then operate a Traffic Control Center. We will have employees of all four of those agencies there collecting information through computers, through monitors on traffic flows throughout the city, and we will actually be making decisions there as far as what we can do to find alternate routes as far as traffic signal timers are concerned, so you are properly controlling traffic. So there is a joint effort. The executive director of this traffic control center is Doug Wirsig. *(For additional information about traffic pattern/traffic mix see attached information.)*

*Are you currently using a pavement management system?* We just had city council approve a contract for \$1 million to establish a program. Within two weeks, we will start a nine month program to totally inventory all of our streets from the standpoint of the condition of each street. It is something that should have been done years ago and has never been done.

*What is your general impression of road conditions in your city?* I was director of Public Works here from 1977 to 1983 and then went into the private sector as a road builder/contractor/engineer. I returned to this administration in the city government when Bob Lanier was elected, so I've been back since 1992. During the time that I was gone, the condition of the streets deteriorated greatly, primarily because of funding. The budgets were cut severely for the street maintenance activity. During this administration, we have put a significant amount of money into the street maintenance program. So if you ask me for a comparison from 1992 to 1988, our streets are in much better condition than they were two or three years ago. But, if you ask me for a comparison between now and 1980, our streets are in worse condition, but we are making tremendous improvement because we have cranked a significant amount of money into our street maintenance program. Asphalt repairs, concrete repairs, ditch cleaning, we are also spending a lot of money on overlays. We are also emphasizing reconstruction on reconstruction of concrete streets. So, this administration, this mayor, this city council, has played a great, great emphasis on reconstruction not only on streets, but on all of our infrastructure. Our emphasis is getting all of our infrastructure -- and when I say that I'm talking about streets, water lines, storm sewers, fire stations, the whole nine yards -- our emphasis is getting our infrastructure up to standard. We're having to build some new stuff, but our real emphasis is on maintenance. The overall philosophy of this administration is to spend the money. To

give you an example, when I came back here, we had seventy eight fire stations in this city and sixty nine of them had roof leaks. The current annual budget for routine maintenance is \$41 million. That is for street and bridge and storm sewer. We are getting ready to go to Metro for an additional \$9.5 million annually for enhanced road and bridge maintenance. That will give us \$52.5 million. They are supposed to vote on that the latter part of September, and city council will vote on it. So that will be a significant increase to our budget if this happens. We are spending about \$25 to \$30 million a year on pavement resurfacing by construction contractors. New construction/reconstruction.....we have a five year program that's \$300 million. So that equates to \$60 million per year. That is all done by bond money.

*What is your budget shortfall?* We are projecting right now, and if we are successful in getting this additional money from Metro, that within five years, we should have our streets in good condition. If you wanted to rate our street and bridge system on its quality, I would say that it is average right now. If we continue to improve.....I would say that if you asked me that question three or four years ago that it was poor. I would say that right now we are average, and if we continue our same program, in five years it will be good. I think that in the nation, especially the state as a whole, there needs to be an emphasis in bringing our infrastructure back up to standard. We in Houston have recognized that need, and we're doing a lot to make that happen. Not only in streets and bridges, but in other areas too. So far the citizens have said, "This is important to us. We drive these streets every day, and we like a good ride", etc.

*Is Metro money currently being used for street maintenance?* Yes, let's talk about that. The Deputy Director over there in charge of engineering construction is a gentleman named Jerry King. Jerry and I are very close friends, in fact he used to work here at the city. Twenty five percent of their money is allocated for what is called General Mobility Projects. That is street and bridge construction in their service area. That is a substantial amount of money. Some of that is allocated for maintenance also. In fact, our mayor was at one time chairman of Metro. He was also chairman of TxDOT at one time too. That is really important because he understands the philosophy of maintaining. So, with that background and we (being Houston) appoint four of the Metro board members. So, obviously we have a big impact on what happens over there. So, Metro has been very supportive of the idea of maintaining the city's streets. We have an excellent working relationship with them. I think you gathered that. I think it is very unique that we have an excellent relationship with the Metropolitan Transit Authority and with District 12, TxDOT. Our county judge, Tom Lindsey also works very closely with us. He is a civil engineer by education. He is the guy responsible for building the toll roads around here. He is very transportation oriented. It is a very unique mix. We have a lot of people who really know a lot about transportation and the importance thereof.

## ABSTRACT

**CITY:** Irving  
**OFFICIAL(S)**  
**INTERVIEWED:** Steve McCullough, Acting City Manager  
 Jim Driscoll, Assistant Director of Traffic and Transportation  
 Jack Angel, Deputy Director of Public Works  
**DATE/TIME:** June 10, 1993/10:00 a.m.

<b>ECONOMIC/ REVENUE</b>	<p>There has been strong economic growth over the last 15 years. Over the last 5-7 years, it has slowed considerably. There has been some decline in the tax base because of slowed growth. They attribute tax base decline to the failure of the real estate market, tax law changes, and declining property values. Building permit issues are up, and there are contacts about firms relocating to Irving. Commercial property constitutes 70% of Irving's property taxes. Approximately 50% of funding for streets is federal. Of the other 50%, 80% is city and 20% is state. Roads that service county residents, as well as the City of Irving, are funded through Dallas County. About \$8-10 million in projects is identified by Irving through the Dallas County bond program.</p>
<b>ISTEA FUNDS</b>	<p>They think that they fared relatively well in competing for ISTEA funds. It was considered to be a time element because areas were given a very short period of time to prioritize projects. (It was mentioned that Dallas County has 29 cities in it, unlike Harris County, where 90% of the county is Houston.)</p>
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	<p>Roads are in pretty good condition. Roads in Irving are better than surrounding cities; they've spent a lot of money on overlay and reconstruction for the last 20 years.</p>
<b>PAVEMENT MANAGEMENT SYSTEM</b>	<p>Streets are visually inspected and kept on a computer program. This includes the age of the street and use of the street. The program does not perform a cost/benefit analysis. Streets are ranked by the amount of maintenance problems on that street, cost of repair or number of trips made to repair it.</p>

MISC	A large percentage of undeveloped land was acquired by three property owners who master planned with the city in developing the property. This has allowed Irving to maintain its tax base. They have the headquarters of Exxon, GTE Corp., CalTex, and Boy Scouts of America. Before Hwy 161 is completed (8 miles), Irving has 29 miles of freeway, making them second to Dallas.
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**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Irving  
**OFFICIAL(S)**  
**INTERVIEWED:** Steve McCullough, Acting City Manager  
Jim Driscoll, Assistant Director of Traffic and Transportation  
Jack Angel, Deputy Director of Public Works  
**DATE/TIME:** June 10, 1993/10:00 a.m.

*What do you perceive to be the general economic climate in Irving?* Generally, the economic climate in Irving over the last fifteen years was a strong growth mode. The last five to seven years, it slowed considerably; however, we have maintained a fair amount of growth because of our regional location; that's had some decline since the value...that we have had enough growth in the past years to generally maintain our tax base. This year we're having a slight decrease in our overall tax base because the growth has slowed.

*What is the main source of local revenue for Irving?* Main source of revenue is property tax and then there's sales tax and then there's bond issues. So, we have a bond rating, and we protect that. We schedule how much we issue each year so that we don't impact our tax rate or our bond rating. The main revenue source is property tax and then sales tax. Since the early 80's, Texas cities have been experiencing a decline in tax base. What we attribute this decline to is the general failure of the real estate market, tax law changes; we're not saying tax law changes were not needed...after the tax laws changed, there was a big drop in new construction, there was a big drop in the appraised value of buildings, of property, and of homes.

*Do you feel that it has hit bottom and will begin to rise again?* That's the way I think Irving, I can't say about the state, I think Irving will be...a part of the indication is that building permit issues are up. There's a lot of contacts about firms thinking of relocating.

*The method of obtaining local revenue over the past ten years has been primarily property tax?* Yes, our resources haven't changed to that degree; the amounts have changed. Our tax base has grown. Irving has grown dramatically over the past twenty years. Another indicator is the change in attitude, it's not dollars and cents yet; but in the last months, we have seen more inquiries as far as properties, projects that have laid dormant for some time from consulting firms...people doing feasibility work. Once that starts gearing up again, not all of it will come to fruition, but at least it's an indicator that the interest is out there again. Things are beginning to turn and we have it; we have it getting those contacts.

***What is different about Irving that has allowed Irving to maintain its tax base when other cities are seeing a decline?*** The city limits today was largely undeveloped, and a large percentage of undeveloped land came under control through acquisition of basically three big property owners that were able to master plan and work with the city planning and developing their property. Today, we have Las Colinas that is very successful in the marketing aspect and working with the highway department to provide transportation facilities. We have the world headquarters of Exxon, GTE Corp., CalTex, and Boy Scouts of America. The quality of development has been such that there has been a continued attraction and ability to attract corporate tax base growth. Tax base growth has been largely on the commercial side; 70% of our taxes comes from commercial property, 30% comes from residential.

***What is the percentage of funding that comes from federal, state, and local sources that is allocated to streets and bridges?*** Approximately 50/50. For a few years, it tended to shift more toward the federal and state level; as we're winding down, on municipal bond programs. (Jack asked us this..) You're talking about all the roads and not just the maintenance of existing roads? ***(We answered..)*** Yes, including construction and reconstruction. What Jim said is right, it's about 50/50... 50% is federal, of the other 50% it's 80% city and 20% state. We do have a number of highways, 161 and 183 and Loop 12. The statistic that I heard the other day is, before 161 is completed which is 8 miles, Irving has 29 miles of freeway which is second to Dallas in this area. So, we are in a good location transportation wise, not only DFW Airport, but we are well served with a highway network that really supports the city streets. It supports it very well; it helps us out with the highway network the way we are situated.

***What about support from surrounding areas? Do you have any projects in conjunction with Dallas on border streets? Is that funded by the city or along with the county?*** County bond elections usually come in, and we've got roads that are...they used to call them greenland roads and they were considered roads that serviced county residents as well as in the past years the City of Irving. For example, Beltline was considered a county or a greenland road, and, unfortunately, the city limits of Irving were funded through bond elections or maintenance, let's say was funded through bond elections of the county. We still have some of those...they don't call them greenland roads anymore. They are just funded through county bond elections. They don't have a specific name any longer, but they have to be on the county thoroughfare plan. Generally, they are regional in nature. They will cross jurisdictional lines to be on the county regional thoroughfare plan, and then projects from that group of roadways are selected and then voted on by Dallas County. I believe the current bond program has about \$8 to 10 million in projects identified by the City of Irving through the Dallas County bond program.

***Is there one source of revenue specifically tied to maintenance and one tied to construction and/or reconstruction?*** When you're talking about streets, you get an overlap when you start repairing streets. Let's say you have a city street, you may have

water...it also contains water and sanitary sewer repairs. You dig into the street to repair the water and sewer lines, and you have to repair the street. Or, traffic installations there are also maintenance problems. Usually, the street department will fund each year for either reconstruction or maintenance or overlay which is a function of maintenance...I think last year we had \$2 million. We had a little over half of a million last year for overlays. We had \$200,000 for milling operations. Major repair on streets was \$250,000. That's the way we handle it. Generally speaking, I'd say that the street department probably has from \$1.5 to 2 million each year for maintenance and repairs. That includes reconstruction; we usually have \$200,000 to 250,000 for reconstruction of roads out of the general fund. Our last bond election for streets was 1982 which was approximately \$36 million. Management is in the process of organizing another possible bond election.

***Are there any type of fees for developers in Irving?*** We don't have fees; 50% of the cost of the project are streets, but they put in their own streets. We have a master street plan, and if the property owner develops property where we're showing a major extension of a route, then that developer will be required to put in that street adjacent to his property. The city maintains the street once it's put in.

***Do you have any type of pavement management system to keep record of the condition of streets?*** We usually keep that on a computer program, and we visually inspect the streets. Based on the number of repairs mainly associated with water breaks and sanitary sewer breaks, we have the age of the street, the use of the street, and monitor our streets that way. If there are any problems in a particular area, then before budget each year, we go out and investigate that particular street to see if it's needing to be replaced or repaired, etc.

***Does the computer program have the capability to predict the effect of spending one dollar here rather than there?*** It doesn't do that. What we look at is if a street is in need of repair, because our bigger concern is not necessarily the use of the street but the safety provided for the street. It may be that the street doesn't get used that much, but it's not in safe condition. It's not satisfactory to us.

***Is there any type of ranking of streets by fair, poor, excellent condition?*** I believe we do. It's handled in the street division. It has to do with...just the maintenance on that street. If we have a lot of maintenance problems on that street, then the program pulls it up as being maybe a number "5" street or "10" street where we have had the most maintenance. Usually, they'll put in a number on the trips out to it or even a cost number on concrete repair. Otherwise, the street department may request funding for the reconstruction of a street; but in putting the budget together, an arbitrary figure...but if it's \$500,000 that they ask to be paid for out of the general fund or out of property taxes, we may want to say, in putting the budget together, that this is a bond issue and probably will be paid for as a bond project. We want to wait until we have another bond election to issue debt to pay for it, because it becomes an issue of whether you want it to be a capital improvement or if



you want it to be general budget. As budgets get tighter, that number gets lower and lower. If your cut-off is \$500,000 or more, we are going to look very hard at trying to fund that out of the general fund.

***What about ISTEA funds, and having to compete with Dallas and other areas for these funds? How has that affected you?*** I think we fared relatively well. We're satisfied with the competition in this area. It was set about in a manner that the technical community got together and decided the groundwork before we ever started looking at the specific projects. Once the groundwork or the rules of the game were established, then the projects were ranked, and there has not been a great deal of moaning and groaning at least from the technical community about the projects that have been selected. I think it was a time element; areas were given a very short period of time to try to prioritize projects. We're not like Houston, where 90% is Houston. Dallas County has got twenty nine cities in it. So, there's a heck of a lot of competition; and in thinking of that, the way it was put together, I think it moved through as smoothly as possible. There may still be some...maybe political dissention as to how the process worked. As far as the nuts and bolts of it are concerned, I am satisfied.

***We spoke to someone yesterday who thought that the whole process of acquiring funds was more political. Do you see that happening at all?*** That statement probably comes with the federal legislation. Some of the traditional highway department selection has been transferred to the MPO's. They are staffed with technical planners, and they answer to a political board. So, yes I guess a strict answer to that is yes; it will become more political because that pot of money is now being determined by a political body. Once again, to me a lot of that was forestalled with some of the background that was done with the technical analysis. Once that analysis was performed, the results were given to this political body of thirty two individuals from different jurisdictions. There wasn't as much moaning and groaning as you would expect because they signed off the technical criteria first, and once you get that to happen then you don't have that much room for complaining later on. So, I think the answer to that is yes and no... it is in politicians' hands more so, but so far, it's working fairly well.

***So, you don't see any certain problem with that?*** We didn't have a whole lot of very controversial projects in the first go around that lent themselves to cities A and B fighting D and E over a pot of money. It'll happen. If Irving has a very worthwhile project and Garland has a very worthwhile project and their ranking came in pretty close, then somebody has got to make a decision...somebody has always had to make a decision, but there may be some politics. If Garland can pull a little more weight than we can, then we're not going to be very happy with it. In the selection process, another factor that maybe the political community is becoming more aware of is that just because you want it today doesn't mean that it's ready to go today. So, if a project in Irving is in '96, and a project in Garland is in '98 there maybe a reason other than funding. It may be logical that the Garland project be out in '98. So, the political community is beginning to understand more the process through the highway department from concept to construction. I think

that's helped the people we're representing, the agencies or whatever you call it. What used to be before we got political is the highway department handled all those decisions basically on technical...but they would come in and pretty well tell you which ones they were going to spend money on. I think some of the politics may actually come out of the system with the criteria for selection, because four years ago the method of politicking was not so much in the open, it was the mayor or whoever picking up the phone and politicking the highway department either locally or in Austin. However, it was that type of politicking versus in a meeting with set criteria. The highway department obviously had some criteria, but there was also flexibility. You will run the gamut in opinions on the legislation.

***What is your general impression of road conditions in Irving? Do you think they are in good condition compared to surrounding areas?*** I think they are unless you've got a lot of money and then they're in bad condition. (laughing: "Jack is politicking Steve for more money.") I think they're in pretty good condition. It's not to say that we won't stay on top of it though, let it slide a couple of years. As long as you keep it in good condition, it's just maintenance. You'll see a lot of cities, as they move funds around elsewhere and they put their street maintenance and their other maintenance on hold three or four years. They look good now, but they try to come back later and play catch-up, it takes ten years. I think it's sad...there are some areas in the county that have had to make those hard decisions, and some of their street maintenance has suffered. I think they will be paying double or more as years go on. I think particularly ours are in good shape considering some of the soils in the northern part of the city...they're really difficult soils to keep anything from heaving and cracking.

***So, right now you are able to maintain them at a level that is going to keep your roads in pretty good condition?*** As of last year we are. (laughing: "You have to understand we just turned in budgets, and we are in the process of making cuts in trying to put our budget together.") We had a lot of miles of roads constructed in the early 80's. So, as the cycle goes, those roads are going to be coming up for maintenance in the next few years. I think during that time, Jack and I can answer that question better if we're keeping up with those demands. I think, generally speaking, that the roads in Irving are better than any of the surrounding cities. I am biased, obviously. We have spent a lot of money on overlay and reconstruction for twenty years. There are no unpaved streets in the City of Irving.

***What about response to citizen complaints?*** I would say that we respond to any complaints that we have, and we look at the complaints against us: broken axles, damaged wheels, etc. I think we have decreased those complaints considerably. We put in concrete streets with curb and gutter. It eliminates a lot of chugholes, the minor problem that you get most of your complaints on. Some of our biggest complaints is when we are reconstructing in an residential area or major area.

## ABSTRACT

**CITY:** Laredo  
**OFFICIAL(S)**  
**INTERVIEWED:** Tim Omick, Director of Transportation Planning  
**DATE/TIME:** August 5, 1993/1:30 p.m.

<b>ECONOMIC/ REVENUE</b>	Laredo is a boomtown right now. There is a lot of new development, and building permits are increasing. It is currently the fastest growing city in Texas. This is attributed to the GATT agreement which removed tariffs on 80% of goods. Bonds are used for construction; they are in the middle of a six-year construction program. Bridge revenues and the general fund are used for reconstruction and maintenance. El Metro, the bus system, allocates about \$200,000 a year to the street department (a ¼ ¢ sales tax was recently passed). They are considering impact fees.
<b>ISTEA FUNDS</b>	Between the FHWA, FTA, and the State of Texas, they have received \$165,000.
<b>RELATION WITH LOCAL MPO</b>	Mr. Omick is the Transportation and Planning Director for the MPO. Laredo's relationship with the MPO is very good.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	The objective of the six-year construction program is to have every street paved by 1996. For the first time, Laredo is able to say that over 50% of their streets are paved. Reconstruction and maintenance are equal priorities. The amount of truck traffic is considered to do more damage than El Metro. Public Works and the Engineering Department survey streets regularly to determine where to allocate funding. The climate is so dry that a good base will last quite awhile. The only weather condition affecting streets is the heat which softens them. There has been a tremendous improvement in road conditions in the past seven years. Mr. Omick mentioned that trucks from Mexico have no weight limits and are damaging streets, but a Texas law just passed this year allowing cities with a population over 100,000 to enforce weight restrictions through local police.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	Laredo does not use one at this time but is in the preliminary stage of considering a system in conjunction with TxDOT. Mr. Omick said that NAFTA will not be the cause of them obtaining a system.

<p>NAFTA/ EXPANDED TRADE</p>	<p>With or without NAFTA, Laredo will continue to grow. Increased trade has resulted in approximately 4,000 trucks crossing the border daily. Customs collects duties on these trucks, but this money goes to Washington D.C. Mr. Omick said that none of this money comes back to the city where the damage to the infrastructure from the truck traffic is occurring. TxDOT is providing some assistance due to the increased traffic. For example, an intercity loop from I35 to Hwy 59 is scheduled for completion in September of 1994. This is also the opening date of the Texas A&amp;M four-year international college. The intercity loop will be the main access to the new college.</p>
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**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Laredo  
**OFFICIAL(S)**  
**INTERVIEWED:** Tim Omick, Director of Transportation Planning  
**DATE/TIME:** August 5, 1993/1:30 p.m.

*What is the economic condition in Laredo?* Laredo is a boomtown right now. Building permits are up. There is a lot of new development. We are currently the fastest growing city in Texas. I attribute this to the liberalization of trade brought about by the GATT agreement. It removed tariffs on 80% of goods. This has increased trade.

*How will NAFTA affect the economic condition of Laredo?* With or without NAFTA, Laredo will continue to grow. The impact of the increased trade to date may be seen in the four thousand trucks that cross the border into Laredo each day---crossing our three bridges. Customs collects duties on the goods these trucks bring across. All of this money goes to Washington, D. C. None of it comes back to the City of Laredo. Those trucks have access to all of our highways and inner-city roads---doing a lot of damage.

*Do you receive any extra funds to repair the damage done by the increased truck traffic?* TxDOT is giving us some assistance. They have several projects currently underway. One of them is an Intercity Loop that will connect I35 to Hwy. 59 on the east side of the city. Texas A&M is opening a four-year university on that side of the city at a site that originally housed a two-year college. TxDOT has promised that this loop will be open by September of 1994--also the opening date of the university. This loop will provide the main access to the college. Another project is the expansion of FM 1472.

*Do you currently use a pavement management system? No. Will NAFTA prompt you to get a pavement management system?* NAFTA will not be the cause of our obtaining a pavement management system. We are in the preliminary stages of considering a system now. It would be one developed by/in conjunction with TxDOT.

*What percentage of your funding for local bridges and roads comes from local, state, and federal sources?* As far as construction goes, we use bonds to pave streets. We are in the middle of a six-year construction program. Its objective is to have every street paved by 1996. This city is 238 years old. For the first time, we can say that over 50% of our streets are paved. We use bridge revenues and general fund revenues for maintenance (includes reconstruction).

***Is maintenance or construction your current priority?*** Maintenance and construction have equal priority. While we are doing reconstruction, we are replacing utilities such as water and sewer pipes---due to the age of the utilities.

***Do you receive any funding from El Metro, the local transit system?*** We receive \$200,000 a year. A 1/4 cent transit sales tax was recently passed. ***Does this cover the damage done by the buses?*** We don't feel that the buses damage the streets. The damage comes from the trucks.

***Are developers responsible for putting in the roads in their developments?*** Yes, developers put in streets to city standards.

***Do you charge impact fees?*** No. We do have a water use fee. We are considering other impact fees.

***Have you received any ISTEA funds?*** Divided between FHWA, FTA, and the state of Texas, we have received \$165,000 plus.

***What is your relationship with the local MPO?*** Our relationship is very good because I am the Transportation and Planning Director for the MPO. Our MPO is made up of nine members. The City of Laredo has four members, including the chairman. The county of Webb has two members. The State Representative in this area as well as the State Senator and the District Engineer are also members.

***How do you determine which streets will receive maintenance?*** That is left up to our Public Works and Engineering Department. They survey the streets regularly. They determine which streets may require some maintenance. ***So they determine that using a survey? Do you know if those decisions are approved by the City Council?*** It depends on the project. If it is a minor maintenance job or a minor repair, no it doesn't need any approval. If it is a major reconstruction of a section, it would have to be approved. We are fortunate here, to some extent, by the fact that the climate is so dry and the ground is so hard that once you have a good base...Once you have a good roadway in place, it lasts quite awhile. It is much different than in other cities, especially in the North where they have the changing of the seasons that affect the roadway. ***Weather conditions don't do any damage to your roads?*** Not really. Of course heat tends to make the roadway softer.

***What is your general impression of the road conditions in Laredo?*** I have lived in Laredo for seven years. My general impression is that we have seen a tremendous improvement in the last seven years. ***Is that a trend that you see continuing?*** Yes. Once we get the streets completely paved....We do have a problem with overloaded trucks coming in from Mexico. There are no weight restrictions per se. A truck can cross our international bridge, going northbound into the United States or Laredo to be unloaded with three times the normal cargo that an American truck can have. You can imagine what

that does to our city streets. A law was passed this year by the State of Texas and signed into law by Governor Richards allowing cities of our size, over 100,000, to enforce weight requirements with their own police force. Before, that was a function of the State Highway Patrol or the Department of Public Safety. We are in the process of getting some officers trained to enforce the requirements for transportation. We will be seriously enforcing weight requirements.

***Has the amount of money you receive from local sources (bonds and general fund revenue) been increasing?*** It has been increasing. It has been increasing primarily because of the paving program. That program was started approximately five years ago.

## ABSTRACT

**CITY:** Lubbock  
**OFFICIAL(S)**  
**INTERVIEWED:** Don Jennings, Street Superintendent  
**DATE/TIME:** July 13, 1993/2:00 p.m.

<p><b>ECONOMIC/ REVENUE</b></p>	<p>The economic climate is better this year than in the past five years. More new homes are being constructed. Mr. Jennings believes that this trend will not continue in the near future. State funding was virtually nonexistent until about a year ago. The main source of local revenue is property tax. The general fund is used for maintenance, and reconstruction is funded through bond sales. They have a street maintenance fund that was started in 1986. This fund is used for street maintenance only.</p>
<p><b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b></p>	<p>They are only able to sealcoat approximately 50% of the streets that need it, and they are able to reconstruct 0% of what is needed. The average life of Lubbock's asphalt streets are stretched from 20 to 33 years by using a modified two-core seal. Fifty five percent of the streets are over the typical design life of 20 years. Funds are not available for reconstruction; therefore, they must have a better quality two-core seal. I27 was recently completed which changed traffic patterns adjacent to it. Thoroughfares are in pretty good shape. Collectors are in fair condition, and residential streets are in poor to fair condition.</p>
<p><b>PAVEMENT MANAGEMENT SYSTEM</b></p>	<p>They are currently using MicroPaver. They have been using it for 10+ years. The allocation of funds to maintenance is determined by the pavement condition index values and the number of complaints in a given year. The system does a cost-benefit analysis, but it is not used. They are still trying to maintain really bad streets so that they do not reach a failed state. Mr. Jennings stated that this is not cost-effective, but the urgency of the situation requires that the worst streets be repaired first. Half of the streets are surveyed each year.</p>
<p><b>MISC</b></p>	<p>Lubbock is continually growing to the southwest. Major projects are handled by the Engineering Department.</p>



**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Lubbock  
**OFFICIAL(S)**  
**INTERVIEWED:** Don Jennings, Street Superintendent  
**DATE/TIME:** 13 July 1993/2:00 p.m.

*What do you perceive to be the general economic climate here in Lubbock?* From my perspective, it is a little better this year than it has been in the last five years. We have more new homes being constructed. The basic business climate seems to be pretty good. Not great...but at least as compared to the earlier years, pretty good. *Do you think that this trend of improvement will continue in the near future?* Personally, I don't think so. I think it will get worse.

*What percentage of your funding for roads and bridges comes from federal, state, and local sources?* For us, federal funding through TxDOT was, until about a year ago, virtually nonexistent. They have constructed about three-fourth of a mile of seventy six foot street. Actually, the highway department designed and constructed it and then turned it over to us. That has been about six months since they turned it over to us. *How much did that project account for?* This is only the city's portion of it. Basically, all we paid for was the curb and gutter. I really don't know the total cost.

*Do you anticipate more or less help from them in the future?* We are anticipating more. The Mayor and one of the councilmen talked to the District Engineer. Then the Director of Transportation talked to the District Engineer. Through the Transportation Improvement Program...You may need to talk to our Director of Transportation, Larry Hoffman, because he is the one who actually has contact with the District Engineer.

*What is your main source of local revenue?* Maintenance funds are virtually all property tax. If there are any leftover funds at the end of the year, the Director of Finance will occasionally put some funds into our permanent street maintenance fund. Generally, it is property taxes, and they go into a general fund. We get a percentage of the general fund for street maintenance. *What percentage?* The total general fund expenditures and reserves was \$62,036,000. Out of the general fund, we get \$2,085,000 plus \$1,200,000 out of the permanent street maintenance fund that I mentioned. That is strictly to pay for street maintenance. As far as reconstruction of major streets, that comes from bond money. Bond programs are once every three years or once every five years.

***What proportion of the maintenance that needs to be done in a given year are you able to fund? Is there a budget shortfall?*** A tremendous budget shortfall. We are only able to sealcoat approximately 50% of the streets that we need to. Difficult reconstruction is probably 0% of what we need to do. In Lubbock, we have found that because of the good weather and soil conditions, we can stretch the average life of our asphalt streets out to thirty three years. The typical design life is twenty years. We are able to stretch them out to thirty three years. So, on average, 3% of them would need to be reconstructed every year. To do that, we would need \$6.7 million in reconstruction funds every year.

***Weather and soil conditions don't do major damage to the roads or the life of the roads?*** Periodically. We don't have the severe freeze/thaw condition that they have in the northern states. We generally have pretty mild winters.

***You said that there is a tremendous budget shortfall. How do you determine where your money will go?*** First of all, we were one of the original cities to begin using the American Public Works Association's Paver program. We have been using MicroPaver for several years. We have had it for ten years, maybe longer. Myself and the Sealcoat Project Manager, we take the Paver output. We look primarily at the pavement condition index values as well as at how many complaints we have had in a given year. We use the Paver data primarily as a tool. We personally look at everything that goes on the sealcoating program. We know that thoroughfares are going to need a sealcoat every six years. Feeders are going to need a sealcoat every eight years. Residential streets are going to need a sealcoat every ten years. Another thing we need to clarify is that when I talk about sealcoat, I don't necessarily mean a single-core seal. We put a very modified two-core seal down which acts like a very flexible overlay. We use a very hard rock which has basically very little loss when it goes through a soundness test. We use a 3% latex in our asphalt which is AC5. What we put down is a seal, but it is much more than a seal. Like I say, to us it acts like a very flexible overlay; we don't have some of the reflective cracking problems that a hot mix overlay would have. Based on this criterion....you look at all the years and you take out bond fund reconstruction...There is no money in the general fund for reconstruction of streets. (Looks for chart) This will show you...you might even want to copy it. This is a policy budget that I present nearly every year. It gives our present status. We have a value of a little over \$23 million in our streets. There is about a design life of twenty years. Here are the actual ages of our streets. Only 28% are ten years old or less. Seventeen percent are twenty years old or less. If you look at a twenty year design life, only 45% of our streets are less than twenty years old. 55% is over the typical design life. This is presented to the City Council. They have been very sympathetic of the situation. By the creation of the permanent street maintenance fund and the \$1.2 million funding that has lately been put into that, we are trying to get caught up and to make some headway. But, the funds are just not available for reconstruction. That is why we have to put down a better quality two-core seal down.

***Does the MicroPaver system that you use provide a cost/benefit analysis to tell you where a dollar is best spent?*** Well, not really that we use. We are still looking at real bad streets that we are trying to keep together so that we don't totally lose them. As compared to what would be the very best thing, which is to go in and put down a single-core sealcoat down on a street, that doesn't look like it needs it to the average citizen. We are still in a catch up phase. You have basically been putting down a two-core sealcoat on streets that are basically in a substandard state. ***You have not had the funds for preventative maintenance?*** It still amounts to preventative maintenance because of the type of seal that we are putting down. It is not the most cost effective thing because the urgency of the situation requires that we take care of the very worst first, even though that is not cost effective. We realize that it is not cost effective, but politically and by virtue of just maintaining a paved street system for the citizens, we have to do a high percentage of that. The most cost effective thing would be to take a good chunk of it and put it on single-cores. We know what needs to be done; we just don't have enough money to get there from here.

***Do you survey the streets? How is the data gathered?*** We have an engineering technician. He surveys half the streets every year. That is what we shoot for: half the streets a year. That data is brought back in and put into the MicroPaver system. We get a PCI rating (pavement condition index) where "0" is a totally failed street and "100" is a brand-new street.

***Do you have a thoroughfare plan for the City of Lubbock?*** The Planning Department does maintain a master thoroughfare map. They are the ones who actually designate what should be a thoroughfare and what should be a collector and that sort of thing. In my maintenance work, I can't always go by their maps because we have situations where a street may not fall in the thoroughfare/collector category on the map. But, let's say that it may be in an industrial area and the truck traffic may be...let's say a street beside an elementary school and they may have ten buses going in and out three or four times a day. I have to determine what I do to the street based on the actual use of it.

***Has there been a change in the traffic pattern and/or mix lately?*** The Traffic Department might be able to say something a little different, but Interstate 27 was recently completed. The construction on that has considerably changed the traffic adjacent to that. The other main things that would be occurring are the continual growth of the city to the southwest. That creates some changes. We have a large mall out in the southwest part of town. Traffic to and from that mall at different times in the year creates traffic changes. One of the big things that we have to look at in street maintenance is the bus system. Buses are actually one of the very worst things on our streets. Literally, if you follow that bus as he pulls over to a bus stop, you will see the cracking pattern. ***Do you receive any money from the bus system?*** No. ***Is the bus system publicly or privately owned?*** It is a publicly owned and privately managed system.

***What is your impression of general street conditions here in Lubbock?*** When we first started this catch-up phase, the thoroughfares, because of their large traffic volume, were listed as our highest priority. We started putting as much effort and funds into upgrading those as possible. We have our thoroughfares, basically, in pretty good shape. What we have to face is that some of those thoroughfares are to the point that they really don't need to be sealcoated again. They need reconstruction. Our collector streets...that is where our primary focus is right now. We are still way behind on our residential streets. We are making headway, but we still need more funds. Myself and the Director of Transportation are looking at the situation. It is not going to be too many years before some of these streets have been sealcoated so much that they are either going to have to be resurfaced or totally reconstructed. There is just no money for that. There is a thick, black cloud on the horizon. ***So, you would say that your collector and residential streets are in fair condition?*** The collectors are generally in fair condition. The residential streets are, on average, in poor to fair condition.

The schools are having to increase their taxes because of all sorts of things. The city has been looked to closer than the schools or state because, in all honesty, we are more responsible for them. So, they keep closer tabs on us and they holler more about us raising taxes because they know that they can get some kind of response.

***How does the permanent street maintenance fund work?*** It is a fund created by the council about eight years ago. That money is only used for street maintenance. They started out putting about.....This might be interesting to you. (Shows them some sort of sheet/budget) As you can see, the general fund contributions have been fairly steady until the last couple of years. This year shows \$1,335,000. That was \$1.2 million for the previous two years. We had a special maintenance project on one street that cost \$135,000, so they added that on. I will let you have a copy of that. ***For how far back do you have this?*** This is about it for the special street fund. It shows back to 1986. I can give you a copy of that.

***What about any major projects?*** That is generally handled under the Engineering Department. The City Engineer's name is Larry Hertel.

## ABSTRACT

**CITY:** Mesquite  
**OFFICIAL(S)**  
**INTERVIEWED:** Earl Deland, City Engineer  
**DATE/TIME:** June 11, 1993/10:00 a.m.

<b>ECONOMIC/ REVENUE</b>	Routine maintenance is funded by the general budget and reconstruction is funded through bond issues.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	The road conditions are pretty good. They plan to spend over \$2.5 million in 1994 for the reconstruction of existing roadway. They usually reconstruct 1 to 2 major roadways per year. They did a lot of construction from 1976 to 1985. Those streets are reaching their design life and have serious deterioration. If serious maintenance is not done to these streets, their expected life will have reached its end.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	They use an inventory system developed by the Texas A&M Resource Center. The Public Services Department conducts a visual survey of all streets and bridges.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Mesquite  
**OFFICIAL(S)**  
**INTERVIEWED:** Earl Deland, City Engineer  
**DATE/TIME:** June 11, 1993/10:00 a.m.

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**Street reconstruction:** We plan to spend over \$2.5 million in 1994 for the reconstruction of existing roadway. We are improving a two lane asphalt street to four lane concrete street. Probably a third to a half of the CIP will be used for reconstructing streets. We reconstruct one to two major roadways per year. In 1991, reconstruction was two-thirds of the CIP program, and we spent \$3.5 million. Routine maintenance is funded by the general budget, and the reconstruction of substandard streets are funded through bond issues.

**Road conditions:** The Public Services Department conducts a visual survey of all streets and bridges. The road conditions are pretty good, but the older streets do not have a lime stabilization under them. Some of our streets are thirty years and older and do not have the lime stabilization.

**Pavement management system:** We use an inventory system developed by the Texas A&M Resource Center.

We had a large growth in the late 70's and mid 80's; it stopped in 1985 due to the real estate crash. We did a lot of street construction from 1976 to 1985. Now, those streets are reaching their design life and have serious deterioration. If serious maintenance is not done to these streets, then at about twenty to thirty five years of age, serious deterioration will become evident. The expected life of these roads will have reached their end.

## ABSTRACT

**CITY:** Mesquite  
**OFFICIAL(S)**  
**INTERVIEWED:** Jim Prugel, Jr., City Manager  
**DATE/TIME:** June 11, 1993/9:00 a.m.

ECONOMIC/ REVENUE	<p>The economic climate is a little more active than most cities. There is new growth in construction. The tax base is fairly flat. Since 1987, they have barely been holding on. A single family's contribution is not adequate to meet the cost to the city of their residential needs. They have received no federal or state funding, except for some financial assistance from the state on old bridges. They receive help from the county through joint projects; the city pays for the materials, and the county does the work. They are hurt by the federal government's unfunded mandates. Funds for maintenance come from the general budget. Long term debt is used for overlays.</p>
ISTEA FUNDS	<p>They have had several intersections worked on (synchronization) with ISTEA funds. Mr. Prugel feels that the reason some areas don't like ISTEA is because they don't put out the effort it takes to get funding.</p>
ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND	<p>Compared to surrounding areas, their roads are above average. They have been able to keep streets to at least a 3 or better (see PMS). However, if major improvements in funding are not made, there will be a real problem in the next 10 to 12 years.</p>
PAVEMENT MANAGEMENT SYSTEM	<p>They do not have a computerized pavement management system. They rate streets annually on a scale of 1 to 4, 4 being the worst.</p>
MISC	<p>They feel they should get as much, if not more than the state gets of the gasoline tax</p> <p>The problem with some repairs is that on a street of ten owners, seven of them want the repairs and three don't. So who pays? The seven who want the repairs, or the city?</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Mesquite  
**OFFICIAL(S)**  
**INTERVIEWED:** Jim Prugel, Jr., City Manager  
**DATE/TIME:** June 11, 1993/9:00 a.m.

**THIS IS NOT TRANSCRIBED FROM A TAPE RECORDING**

***Economic Climate:*** It is a little more active than most cities in Texas. There is new growth in construction, but there is a reduction in the tax base because of a reduction in home and business values. Tax base is fairly flat. The sales tax increases 5 to 6% per year. Since 1987, we've barely been holding on. A single family home's contribution is not adequate to meet the cost to the city of their residential needs. In 1990 Census, we were the twelfth fastest growing city in the nation and the third fastest growing city in Texas.

***Funding for streets and bridges:*** There is no federal or state funding. We have received some help on certain projects from the state but no direct funding. We are receiving financial assistance from the state on old bridges. Local revenue comes from bonds or the general budget. We use long term debt for overlays. We receive some assistance from the county. In joint projects with the county, the city usually pays for the materials and labor, and the county does the work. The federal government makes mandates without any funding to the city to meet their requirements.

***Development:*** The developer is responsible for putting in streets in newly built residential subdivisions. The Houston Clay subsoil is very bad on streets. It moves and swells. We can continue to overlay streets, but at some point they must be rebuilt.

***Suggestions for funding:*** We feel we should get just as much if not more than the state gets of the gasoline tax. They are just funding their own activities. The city does not see any direct effect of the gasoline tax. Where does the money go? It takes too much "good luck" to pass new legislation in Austin. The legislature doesn't want to take the responsibility of putting taxes on people. Until there is an obvious problem, there is no relief. In the next 10 to 12 years, there will be a real problem with streets. Major improvements are needed to hold status quo.



***Pavement management system:*** We do not have one. Every year, we do a visual inspection of the streets and we rate them from 1 to 4, a 4 being the worst. We have been able to get the streets to at least a 3 or better. The long range forecast on streets is virtually impossible. We can't predict what a street will do. It's difficult to project a concrete street's life. Once it starts deteriorating, it can happen quickly or it can never get out of hand.

***Weather:*** A lot of rain in the last five years has raised the annual rainfall by three to four inches, but we have not experienced any extremely cold winters or hard freezes.

***Road conditions:*** Compared to surrounding areas, our roads are above average. The problem is that a lot of areas in the future will need to be reconstructed. For example, as we overlay streets, the street gets higher and the curb gets lower. We assess the homeowner for the cost of curbs, but if it is too far gone, the city will pay for most of it with some of the cost paid for by the homeowner. The problem is that on a street of ten owners, seven of them want the repairs done and three don't; what do you do? Who pays, the seven or the city? We are meeting the needs today, but it would be good to have a sinking fund to reconstruct streets in the future.

***Major projects:*** We are reconstructing Highway 80 south to the RR tracks from a two lane to a six lane. It showed signs of cracking, and in three years it crumbled. We can't afford all of the projects that are coming up.

***ISTEA funds:*** We have had several intersections worked on as far as synchronization goes. The reason other areas don't like ISTEA is because they don't send delegates to meetings to get funding.

## ABSTRACT

**CITY:** Midland  
**OFFICIAL(S)**  
**INTERVIEWED:** Harvey Hansen, Director of Engineering and Transportation  
**DATE/TIME:** June 21, 1993/1:00 p.m.

<b>ECONOMIC/ REVENUE</b>	The economic climate is stable with maybe a 2% growth annually. This is based primarily on the sales tax trend of growth over the past 5 years. From '84 to '86, it was a "very bad time." Future growth is dependent on the gas market. They do not charge impact fees. The tax base has declined from \$3.6 billion in 1986 to \$2.5 billion in 1993 due to a loss in commercial real estate. They are only able to do about 50% of what needs to be done in terms of maintenance. They issued \$2 million of certificates of obligation to catch up on maintenance.
<b>ISTEA FUNDS</b>	No funds have been received. They are working with TxDOT, FHA, and Odessa to route I27 from Lubbock to I20 in Midland.
<b>RELATION WITH LOCAL MPO</b>	They have a good relationship with their MPO. They have representation on the board.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	There are four major arterials that are state built. Their priority is maintenance. Road conditions are "better than any of the other West Texas cities."
<b>PAVEMENT MANAGEMENT SYSTEM</b>	They put their street mapping, age of street, and the number of sealcoats on Computer Aided Design (CAD). Several years ago they used laser technology to measure densities and the thickness of the asphalt to the base. The initial cost was \$200,000. They sealcoat streets every seven years; this is the only time data is added to the CAD.
<b>MISC</b>	The city receives 3% of the gross utility sales. Starting in July 1993, the percentage will increase to 4%. The city council is considering dedicating the amount received from the increase to street maintenance. This action would almost permanently fund street maintenance.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Midland  
**OFFICIAL(S)**  
**INTERVIEWED:** Harvey Hansen, Director of Engineering and Transportation  
**DATE/TIME:** June 21, 1993/1:00 p.m.

***What is your perception of the economic climate in Midland?*** I would say stable to maybe 2% growth annually. I base that primarily on our sales tax trend. The sales tax is a good reflection of retail sales. We're having 0-2-3% growth, and we have had that for five consecutive years. We had a very bad time in '84, '85 and '86, but since then it has been.....***You must have been hurt in the early '80's when the oil prices fell.*** Well, it is a very different phenomenon from what you might think it is. Let's assume that Company X has a thousand employees, and they are going to cut back to nine hundred. What we are seeing here is that of that hundred who leave, maybe half are retirees and they end up staying. After a while, Oil Company X or Y adds back a few employees so that after a few years the economic impact isn't very significant. ***What kind of growth do you foresee in the future?*** I continue to see the same thing with the exception being if something happens to the natural gas market, we would grow faster than 2 or 3%.

***Is your funding for roads and bridges primarily from local sources?*** Greater than 50% of it comes from local, state, and federal sources. We have three or four major arterial roads in the city and the loop which is currently under construction. All are state built. I would say that over 50% comes from those three sources. ***Where does the rest come from?*** The rest comes when you build a subdivision and the developer pays for it.

***Do you charge impact fees?*** No, we do not. We do developer contracts. When a subdivision is put in, we negotiate public improvements in the contract.

***Has ISTEA had any impact on you?*** It will be a very significant deal to us. The reason for that is that I20 runs east and west through here. We have an international airport that serves the whole area right on I20. We are currently working with the City of Odessa, the Highway Department, and the Federal Highway people about trying to route I27 from Lubbock to Midland, with it intersecting with I20. I27, I20, the commercial airport, and the railway would all be within a one mile radius of each other. ***You haven't received any ISTEA funds yet?*** No.

***What is your relationship with your local MPO?*** It is good. We don't have any problems. We have representation on the board.

*As far as roads go, is your priority spending reconstruction or maintenance?* I would say maintenance.

*We have been told that because of the age of the majority of the roads in Midland, there will be a critical period as far as maintenance goes six to eight years from now. Do you agree?* It will be. The reason for that is if you don't stay up with maintenance and keep it current, then when you do have growth, you are doubling up. You need the money for the growth, and you need the money for catch up maintenance. Whereas, if you stay caught up on the maintenance, when you get into a high growth situation and miss a year or two of maintenance, it doesn't hurt you as bad.

*What is your main source of local revenue?* Sales tax and property taxes.

*Has your tax base been declining?* Yes. It declined from \$3.6 billion in 1986 to \$2.5 billion in 1993. *Is it on its way up?* This year it is level for the first time since 1986. All of it is a loss in commercial real estate. *Do you think that it will get better in the future?* Well, I don't think that the commercial real estate can get much worse. There are buildings in the downtown area with several hundred thousand square feet that....

*But, you are seeing growth of 2-3% annually in sales tax?* The odd thing about it is that we have this decline in commercial property, but then we issue about three hundred new building permits for new residential homes. The residential growth never did stop. Basically, we've got a situation in Midland and I think throughout the state where commercial real estate was really built during the '80's.

*Several cities have told us that the tax revenue brought in by a single-family dwelling is not enough to match the burden it places on the city. Is that true?* It depends on how you look at it. If it continues, that might be the problem. In the state that we are in right now, that is not the problem. If you see commercial real estate continuing to decline the way it has been, then that will ultimately be the case.

*Do you use a computerized pavement management system?* Yeah, we have a lot of things. We have street mapping and everything on CAD. We have a program that we did several years ago that was laser technology. It was done on a truck and lasers were shot down into the street. It measured densities and the thicknesses of the asphalt to the base. On top of that, data about the initial construction of the street and how many sealcoats it has had on it is entered. It is all run through a computer model. *How expensive is that system?* We paid \$200,000 for that system. *What does CAD stand for?* Computer Aided Design. *How much does it cost to maintain that system?* Well, we haven't come back in and redone the streets. You seal a street every seven years. Once we have worked our way through all of the streets, it will be time to redo the analysis. Otherwise, the only data that we have to add to the system each year are the streets that we have sealcoated that year.

***What percentage of the maintenance that needs to be done in a given year is actually completed and paid for? What is your budget shortfall?*** In our case, we are catching up this year because we are using some indebtedness to pay for sealing the streets. We should have been putting in \$750,000-800,000 each year, and we have only been doing about \$400,000. About 50% of what we should do. This year, we are doing nearly \$2 million so that we can catch up.

***Where did the funds come from to allow you to play catch up? Certificates of obligation. It is like a bond issue. Does this have a shorter life than a general bond?*** It can. These particular ones that we issue are for ten or twelve years. The council can issue the debt without a bond election. It is subject to election if there is a petition filed by so many of the registered voters who are protesting it.

***What is your general impression of the road conditions here? They are better than in any of the other West Texas cities. Why? First of all, Midland is a newer city. All of the roadways are newer. We have grown from about 70,000 people to about 95,000 in the last twelve to fifteen years. So we have that much new roadway. If you look at Abilene, San Angelo, Lubbock, or Amarillo, they have roadways which are much older. That is one reason. The other reason is that we have done a pretty good job...particularly in getting caught up this year.***

***Prior to this year, had you ever issued certificates of obligation to pay for sealcoating?*** No. It has always been done out of the general fund. These certificates will be paid off out of the general fund. Instead of expensing \$800,000 a year, we just borrowed the money to pay for two or three years to catch up.

***Have you experienced any substantial change in traffic pattern and/or mix?*** Not that I am aware of. Harvey might have to answer that.

***Any major projects? Loop 250. You said that would be paid for by...? State.***

Actually, let me tell you another thing about the street maintenance program. Currently, the council is considering an ordinance that would increase the fees charged to the building company. Right now, the city gets 3% of all the gross utility sales. The reason for that is that all of the poles and transformers and things are in the city right-of-way. That will probably go to 4% starting in July. That will generate another \$600,000. The council is considering dedicating all of that to street maintenance. That would almost permanently fund our street maintenance program. ***Do you think the council will approve that?*** I believe they will.

## ABSTRACT

**CITY:** Odessa  
**OFFICIAL(S)**  
**INTERVIEWED:** Jerry McGuire, City Manager  
 Matt Squyres, City Engineer  
**DATE/TIME:** June 21, 1993/9:00 a.m.

ECONOMIC/ REVENUE	<p>The economy has been flat for the past 10 years. Single family housing construction has been stronger in the last year or two compared to 5 years ago. They conducted an Overall Economic Development Plan through the Economic Development Administration for Odessa and Ector County. This will "hopefully" make Odessa eligible for state funds. TxDOT funds bridge maintenance. New projects or reconstruction is funded totally by TxDOT. Odessa has not funded projects with local funds in more than seven years. Maintenance is funded by the general fund which is primarily from sales tax, ad valorem tax, and user fees. No impact fees are used.</p>
ISTEA FUNDS	They have not received any funds.
RELATION WITH LOCAL MPO	Their relationship with the Permian Basin Regional Planning Commission is excellent.
ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND	There has not been a need for construction. Developers are required to put in new streets in subdivisions. Odessa's priority is maintenance. They perform maintenance every six years. They have fallen behind "a little bit," but in another year, they will be back on schedule. Road conditions are still in good shape, but the conditions have gone down.
PAVEMENT MANAGEMENT SYSTEM	All records are kept on a manual system. Condition surveys are conducted in the spring to ensure they are targeting the right area. They do not rank streets. They have considered using a PMS, but cost has prevented its implementation.
MISC	Traffic Patterns: Hwy 191 between Midland and Odessa is being used more all of the time.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Odessa  
**OFFICIAL(S)**  
**INTERVIEWED:** Jerry McGuire, City Manager  
Matt Squyres, City Engineer  
**DATE/TIME:** June 21, 1993/9:00 a.m.

*What do you perceive to be the economic climate in Odessa?* I'm speaking as a relative newcomer to Odessa. I've been here less than a year and a half, but I think I've been involved enough to be able to speak....Our economy in the Permian Basin has been relatively flat for the past ten years. We've seen some minor peaks and valleys, but it's been fairly flat for the last ten years. Our real estate values have stayed flat for the most part, in some instances declined, but we are seeing some issues that are pluses in terms of our single family housing construction which has been stronger in the last year or two than in the previous five or six years. We had a major economic study done here by Dr. Ray Pearman, and I see that as a real impetus to help us get our act together in terms of developing a strategy for Odessa, where we are going to go in the future. We had an economic summit here last month with all of the taxing entities here together. We brought in Bob Bolan and the Cornerstone Group out of Ft. Worth. They are consultants and will help us develop a strategy. We will be working for the next several months to pull all of that together in order to try to move Odessa to the front of the pack....to be a major player in the State of Texas. A lot of things are going to have to happen. We have given ourselves a wake-up call. The name of the game is jobs. We have to be able to help existing industries expand and attract new industries. We are now officially sanctioned as an EDA (Economic Development Administration). We did an OEDP (Overall Economic Development Plan) through the Economic Development Administration for Odessa and Ector County which will hopefully make us eligible for some additional federal funding. We have an Enterprise Zone here and a number of other things such as tax abatements to help attract new businesses. We have landed a few new small businesses here in recent times. The governing and taxing entities are working very closely together. I think it is real important for Odessa and Midland to work together. We are doing a lot of positive things, but it doesn't come overnight. It is going to take a while to get us there. I think we are starting to work as a cohesive group with specific goals on where we need to go and what we need to do.

*Does your funding for roads and bridges come mainly from local sources?* You say roads and bridges? We aren't funding any bridges locally. I guess the State Highway Department funds what little is being done. The only new projects or reconstructions are

being totally funded by TxDOT. We haven't funded any projects with local funds in more than seven years.

***Funds for maintenance comes from the general fund? Yes. And that comes from property and sales tax revenues?*** The general fund is primarily made up of sales tax, ad valorem taxes, and other user fees. ***So, you haven't been doing any construction?*** No, I mean there hasn't been any need to. Any residential or subdivision streets are done through the developer.

***Have you received any ISTEA funds?*** It sounds promising, but as far as I know, none of it has made it to our level yet or really affected us yet. Our major projects are still programmed through TxDOT.

***What is your relationship with your MPO?*** Our mayor is part of the MPO, part of the policy making group that meets out at the Permian Basin Regional Planning Commission. Our relationship with it is excellent. I mean, that is why we have been able to get so much assistance out of the Department of Highways.

***What is your spending priority, construction or maintenance?*** Maintenance.

***Do you have a pavement management system?*** Not computerized, no. We have kept good records; it is like a manual system. We know what streets have been maintained, sealcoated, overlaid for the past thirty years...but it has to be retrieved manually. ***Have you considered using a computerized pavement management system?*** Sure. We would love to. The cost...

***What percentage of the maintenance that needs to be done in a given year is actually done?*** We are committed to the six year cycle on our streets. We got behind a little bit, but we are recommitted to catching up. In another year or two, we will be back on that schedule.

***What is your assessment of the road conditions here?*** We feel like we are still in good shape. The condition has definitely gone down. We have a few more potholes and a lot more streets that are exhibiting deterioration, age-type symptoms...but basically we are still in good shape. That is our whole program, to make sure we don't lose that.

***Is the six-year cycle that you mentioned how you determine what maintenance will be done?*** Yes. It really gears around our sealcoat program. We do some condition surveys in the spring to make sure that we are targeting the area that we want to. ***Do you do that every year?*** Yes. ***Do you have a quantitative assessment or ranking of the roads?*** No.

***Have you observed any changes in traffic pattern?*** We haven't had any major changes; we have had some localized development that has changes an intersection or something but



overall.....191 between Midland and Odessa has been the most major change in the last ten years. That is a freeway-type construction access between Midland and Odessa that is used more all the time. It is on State Highway 191 or 42nd Street for us.

***Do you charge impact fees? No. Developers are responsible for putting in the roads in their subdivisions? Yes.***

## ABSTRACT

**CITY:** Pasadena  
**OFFICIAL(S)**  
**INTERVIEWED:** David C. Newell, Engineering Coordinator  
**DATE/TIME:** September 2, 1993/9:00 a.m.

<b>ECONOMIC/ REVENUE</b>	The economic climate is generally good. There is a lot of residential and commercial construction. They expect this trend to continue. About 80% of funding is from local taxes and bond funds, and about 20% is from HUD. The main source of local revenue is property tax and sales tax. This money is used for maintenance and minor reconstruction. Bonds are sold about every ten years, and they are used for total reconstruction. They have not really experienced a declining tax base.
<b>ISTEA FUNDS</b>	Mr. Newell had never heard of ISTEA.
<b>RELATION WITH LOCAL MPO</b>	They have two members on the board.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	Road conditions are fair. They are able to keep up with all of the major repairs that need to be made. But, as the streets get older and get more traffic on them, they will have a real problem.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	They do not have a PMS. "There is probably a need for one, but there's probably not enough money in the budget for one."  At the beginning of the year, they drive every street in town and make a list of the ones that need maintenance.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Pasadena  
**OFFICIAL(S)**  
**INTERVIEWED:** David C. Newell, Engineering Coordinator  
**DATE/TIME:** September 2, 1993/9:00 a.m.

(Mr. Newell made a statement at the beginning of the interview that he had never heard of ISTEAA)

*What is the general economic climate in Pasadena?* It's generally good here. There is a lot of residential and commercial construction going on. We're looking at four or five brand new subdivisions going in. *Do you expect these conditions to continue?* Yeah, there's been additional requests for availabilities of utilities.

*What percentage of your funding for roads and bridges is obtained from local, state, or federal sources?* About 80% of our funding is from local taxes and bond funds, and about 20% is from HUD. *Has this funding pattern been consistent in the past?* Yes. *Do you expect it to stay the same?* Yes, unless the federal government cuts it up.

*What is your main source of local revenue?* Right now, it is about 50/50 (property tax/sales tax). We sell bonds about every ten years or so, and we got \$20 million last time. When you average that out over the life of the bond that's about \$10 million for taxes and \$10 million for bonds. *Is your community usually willing to pass bond issues?* We've never had one fail in the sixteen years that I have been here. *Has your method of obtaining local revenue changed over the last ten years?* No.

*Has Pasadena experienced a declining tax base?* Not really. Like I said, even during the recession in the southern part of town, they were building houses down there.

*How is your funding allocation between maintenance and reconstruction determined?* The budgetary money that street and bridge gets goes to maintenance and minor reconstruction. The bond money has to go to total reconstruction.

*Do you have a Pavement Management System?* No. *Have you considered one?* We've read some literature from the Asphalt Institute. There is probably a need for one, but there's probably not enough money in the budget for one. It requires some pretty heavy

duty equipment. *Do you have any kind of quantitative assessment of your roads? How do you prioritize maintenance?* At the first of every year, we develop a visual inspection. We drive every street in town and make a list of roads that need maintenance. *Do you do this every year?* We're going to be starting to do it this year for the first time in an organized manner.

*What is your general impression of road conditions in Pasadena?* They're fair. There are some areas that go back into the 1940's that need work, but then we have anywhere up into the present where they are good streets. *Will there be a critical period in say ten to twenty years when your roads will reach a very poor status due to the fact that you are unable to do an adequate amount of preventative maintenance right now?* There probably will be unless more money is spent to upgrade the system. *What is your budget shortfall?* Right now we are able to keep up with all of the major repairs that need to be made. But if we don't get more money, as the streets get older and get more traffic on them, we will have a real problem.

*Have you experienced a substantial change in traffic patterns?* No.

*Do you have a good relationship with your local MPO?* We have two members on the board. We are a member of it.

## ABSTRACT

**CITY:** Plano  
**OFFICIAL(S)**  
**INTERVIEWED:** James McCarley, Assistant City Manager  
 Mike Rapplean, Manager of Public Works Operations  
 Allen Upchurch, City Engineer  
**DATE/TIME:** June 14, 1993/2:00 p.m.

<b>ECONOMIC/ REVENUE</b>	<p>Sales tax indicators are up; ad valorem tax is the main source of local revenue. Building permits for single-family homes exceeded expectations. City council is averse to raising taxes. The bonds that are approved are not sold in large numbers because this would necessitate an increase in taxes or a decrease in services to pay them off. It was stated that Plano has probably been "negatively impacted by what the state and federal governments do." Plano's economic condition is attributed to local conditions: the growth rate, Frito Lay, and J.C. Penney's headquarters moving to Plano. Maintenance is funded out of capital reserve monies, bond funds, and the general fund. DART, the bus system, provides approximately \$3 million in funding.</p>
<b>ISTEA FUNDS</b>	<p>They felt that the process of obtaining funds was very political. Plano's projection is that by 2010, there will be a \$12 billion shortage in highway funding to their region. They favor a share of the gas tax.</p>
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	<p>It is expected that in the next five years, the majority of Plano's infrastructure will be in place. Their infrastructure is relatively new (on the average, 20 years old), and 99% of it is concrete slab. Large segments that need replacement are contracted out through Capital Reserve and Capital Improvements. Homeowners' expectations for local services are higher than what the city can provide. They conducted a citizen survey six months ago; there were no complaints about road conditions, just congestion problems.</p>
<b>PAVEMENT MANAGEMENT SYSTEM</b>	<p>It was stated that typically, pavement management systems do not address rigid pavements. IMS conducted a survey five years ago. This survey along with a visual inspection was the basis for repairs that would be made. The pavement management system rates streets: good, poor, fair, etc. All streets poor and below have been reconstructed. This did not include residential streets. Every five to seven years, the staff meets with citizens and develops a capital improvements program; several areas are addressed such as reconstruction and new construction.</p>

MISC	<p>Traffic patterns: All traffic used to flow toward downtown Dallas. A shift has started to the west towards the airport. Because of corporate relocation to Plano, an additional 7,000 employees have moved to the area. Plano has become a "net importer of daily workers."</p> <p>Major projects: Close to \$30 million was received from the state through the 1980 program.</p>
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**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Plano  
**OFFICIAL(S)**  
**INTERVIEWED:** James McCarley, Assistant City Manager  
Mike Rapplean, Manager of Public Works Operations  
Allen Upchurch, City Engineer  
**DATE/TIME:** June 14, 1993/2:00 p.m.

*What do you perceive to be the general economic climate in Plano?* Well, compared to the rest of the state, it is better. Our sales tax indicators are up. Building permits continue to exceed expectations as far as single-family residential go. There has been somewhat of a slowdown in commercial activity. Other than that, pretty good. The downside to that is that our council, as with most elected bodies, have been averse to raising taxes. Especially considering the school funding crisis. We are caught in the backlash of that, especially for funding the kinds of things that your survey talks about. Even though we have some bonds approved for some of it, the council is reluctant to sell them in large number because to pay them off, you are going to have to raise local taxes or decrease other services. The downside here is that we have suffered some bond defeats recently, not only for general revenue bonds, but also for some revenue bonds that certainly affect water and sewer infrastructure. This is not 100% related to transportation but often times, it is coupled with that internally. So that has really caused a burden on some of our other funds. We are on a pay as you go system, where our water and sewer rates are adjusted annually to pay for projects related to water and sewer as we go, although it has really impacted the city council on their willingness to fund many of the other projects.

*Why are you better off than the rest of the state? To what do you attribute that?* Local conditions. We have probably been negatively impacted by what the state and federal governments do. The strongest thing going for us here is the nature of the community...the growth rate that we have experienced. A lot of our infrastructure requirements in transportation are fronted by and paid for by the developer, even the major arterials through our subdivisions. And we participate in oversights.

*How about funding for transportation projects? Is it primarily from the general fund or from bond sales?* The construction that the developers don't pay for is funded through Capital Improvements. The maintenance area is a whole different ballgame. We use some capital reserve monies which is almost like a depreciation fund. As repairs are made, it comes out of there. We also use some bond funding and money from the general fund. It is sort of a mix.

***What do you consider to be the main source of local revenue?*** The main source is ad valorem taxes. In our community, once you eliminate bond fund, it goes to the sales tax followed by miscellaneous fees, permits, licenses.

***What kind of revenue trend do you foresee?*** I think it is going to continue to be not as strong as it once was. Probably in the next five years, our new infrastructure needs may end up diminishing compared to what they are today. Our maintenance needs for our infrastructure are going to continue to increase. I think that in five years the majority of our infrastructure is going to be in place. With water and sewer, we will be using the next couple of years to increase capacity and provide repairs to the system.

***Since the 1980's, many Texas cities have been experiencing a declining tax base. Has that been your experience also?*** No, we are probably an anomaly there. We are about \$7.6 billion. We had a slight decrease one year, but other than that, we have continued to increase. It is only due to the new growth that we are able to remain at our existing tax base. We have suffered a depreciation of our property, especially in this area. It is not just the RTC and FDIC issue, it is also just the general economy.

***To what do you attribute the growth that you mentioned?*** Residential and commercial development within the last ten years. Frito Lay and J. C. Penney's have built their corporate headquarters here. The residential growth is reaching 2,000 to 2,500 single-family dwelling permits a year. We can certainly give to you our population growth over the last twenty years. In 1970, we had a population of 17,000 people. Today, it is estimated at close to 150,000.

***Have you been able to meet your funding needs as far as maintenance and reconstruction goes?*** It is all relative. There is never enough to do it all. Our infrastructure is relatively new. It is all concrete slab. This is a long wear system. It will be another five or six years before we start to see large replacements. Most of it is, on average, only twenty years old now. From the standpoint of maintenance, a lot of that has just been getting some cosmetic work, some slab replacement work. We don't necessarily have a large maintenance division to replace large segments of the road. We contract all of that out through Capital Reserve and Capital Improvements Programs. We don't maintain a large work force ourselves for repairing streets as far as main breaks and settling. We also see the homeowners wanting their streets maintained to a higher level than we can manage. I think the homeowners' expectations for local services are higher than we can meet.

***Do you foresee a big problem in five to ten years when the roads are at an age when they need more maintenance?*** I hope not. What we are experiencing now has to do with the way things were designed and built twenty years ago. Our standards weren't where they should have been. We have since then changed those standards. This guy here has assured me that the design standards that we have in place now for the developers will keep us



from having this massive breakdown that is now occurring to our infrastructure. We try to stay as aggressive as we can on our levelling of the slabs and keeping those surfaces as well as we can. Probably, if you would ask most of our customers, you would never hear them say anything negative when asked about the roadways.

***Are you currently using a pavement system?*** We have one. In Plano, 99% of our streets are concrete. Typically, the pavement management systems that are out there don't address rigid pavements. Five years ago, we hired a firm (IMS) who came in and did a survey and evaluation of our major thoroughfares and some of our secondary thoroughfares that had reached twenty years of age. Based on that plus a visual inspection that we did, we put together a program of streets that needed repairs based on the survey and the strategy that we gave them. Since then, we have repaired everything that the survey identified. We are still working on some continued slab replacement programs on the thoroughfares. To answer your question: Yes, we do have one. We are nearing the time when we need to go back and reevaluate roadways again to see if there have been any changes to the soil. We also need to add additional thoroughfares to it. Since we did the survey five years ago, we have added about one hundred miles to our road system. This is just for the major thoroughfares; it doesn't get into the residential system. It really becomes part of our strategic planning system, as far as the infrastructure goes. We do similar things for water and sewer. We try to get ahead of the game. What the system helped us do was identify sub-structural problems or liability problems that helped us go back and do a more visual inspection. We were able to correct a lot of problems that weren't visible, but were underneath, before they broke down. I think that was one of the greatest benefits. There were eighty to ninety locations that could have cost us millions of dollars if we hadn't detected them ahead of time.

***Do you have any sort of optimal plan for your infrastructure?*** Well, we have a capital improvements program process about every five to seven years. The staff meets with citizens and develops its program. A more intensive part of that than we've ever had before is old infrastructure, which pieces of that need to be replaced. There were drainage issues and new thoroughfare issues. We use that as a basic plan. Then, through these studies, we develop strategic planning. This also helped us give the financial folks an idea of what expenditures we are needing for the capital reserves program.

***How do you decide where funds will be allocated? How do you decide whether funds will go for maintenance on Street A or on Street B?*** My people are out there. We are the guys who see what is happening. We have recently just finished putting together a capital improvement program where we address several different areas: reconstruction, new construction, and things like that. We determine, based on our evaluation, what needs to be done. We actually prioritize all the different classes: reconstruction, slab replacement, water line replacement, etc. We just actually put together a program through 1996-1997. We have identified for five years what needs to be done based on history, service calls, things like that. The council does sometimes have something to say about the priority.

They may come up with \$3 million and, for some reason, we are only recommending \$1.5 million. Occasionally, an elected body will get involved. Maybe they will say that A and B both need it, but we are going to give it to B. Generally, up to a certain point, it is really up to the recommendations of the staff.

*You have mentioned that you prioritize the streets. Do you also rate them?* The pavement management system did that for us. It rated them good, poor, fair, or terrible. All of the ones that were poor and below have either been reconstructed, had major slab replacement, overlays, or whatever it needed. We established a numerical rating. Anything below seventy five was brought up to that level or above. We have done that. Any current problems in the secondary or residential streets have a lot to do with other factors under the pavement like water or sewer lines. A lot of our slab replacements in residential areas have been driven by sewer line replacement programs. On a manual basis, Mike has a five year planning tool. Those things change from year to year due to circumstances.

*How does weather affect the streets?* About the last three or four years have been extremely wet years. I don't even know if I could tell you scientifically what effects that has. We haven't had any bridges washing out or bridge replacement.

*Have you had any change in traffic pattern and/or mix?* From my experience, there has been a shift. All of the traffic used to be headed to downtown Dallas. From listening to all of the experts, it sounds as if a shift has started to the west towards the airport. Plus these major employment players. Because of J. C. Penney's and others, we have an additional 7,000 workers in Plano in just the last couple of years. In the last two years, we have become a net importer of daily workers. For a long time, we were primarily a bedroom community. Now with the latest development of the corporate headquarters that have located here in the west side and other employment bases, we import more than we export each day. That has increased the east-west traffic pattern plus causing a dual burden on our north-south roadways too. We are used to having it one way at one time of day and the other way at the other time of day. Now, it is pretty much packed near rush hour.

*Are you working on any projects in conjunction with the state or federal government?* We have had some state projects like Preston Road. The state has done some other projects with us. In 1980, we were able to get a program going and had close to \$30 million from the state. We had a lot of swap out and a great relationship with the DOT. Not that it has changed, but due to the political process, it is starting to change. ISTEA has pushed our Regional Transportation Council which is our MPO not into an adversarial role with the Highway Department, but one that is not as...The DOT used to just do what they wanted to. They were nice and would ask us, but then they built what they chose. Now it is more of a mutual basis from a regional level. We have worked hard to maintain our relationship. Plus, we are part of DART. We receive part of the funding, probably \$3 million a year through the local assistance program. Over and above that, I guess that one

project is through the Transit PASS Program which is a subset of the state PASS and a part of DART. That is about \$5 million. We try to make use of and leverage all of the dollars. Of course, the big dollars are for State Highway 190. We have had to clear all of that right-of-way. It is a multimillion dollar and multi-agency project.

***What is your impression of the process to obtain ISTEA funds? Is it favorable?*** Well, we have not had a full year under our belts. These guys may have a different feel about the prioritization process of the first year, but I thought it was very political. I think that the politics were just starting this year. Our 2010 projection is that there is about a \$12 billion shortage in projected highway funding to the area (other than local). So, there is \$12 billion worth of projects in this region (our COG and sixteen county region) that there is not going to be money for. I am sure that there are going to be politics at play to try to get ours or theirs.

***Do you have any suggestions for increases in local funding?*** The primary one that we have worked on for years is for a share of the gas tax to come back directly to the cities. Urban areas especially, who are the biggest generators of the gas tax revenue, feel strongly that there should be some sharing of that. I'm an old country boy, and I love rural roads, but if you look at your transportation needs, especially in this four county area since we are not TAMA, it has gotten more and more critical, whether you believe in it or not. Not only for maintenance, which is key, but for signalization issues and capacity improvements. Everybody wants to push for Rapid Transit, but it will never work in the Texas environment in our lifetime because people's lifestyles are not going to change. You have to be realistic and look at capacity improvements and mass use of HOV's. All of that could be funded either by participation in the gasoline tax or even if it were raised a limited amount. I am sure that I do not want to raise taxes...at least user taxes as opposed to our ad valorem tax base that we are having to allocate to maintenance and capital improvements now. ***How long have cities been lobbying for a share of the gasoline tax?*** Well, at least the last twelve years, which is as long as I have been here. Probably more. It used to be called the Pothole Fund. Every session it changes names. We had it in a bill in the '91 session, but it got crossed out at the last minute. ***Do you think that legislation will be passed in the near future?*** It is pure politics. It depends upon who the governor is and how much support we have. It is like anything else, until it gets to a critical stage...These guys talked about our citizens' expectations. Quite frankly, I think they expect more. They will put up with a lot less than in other communities. Just north of here, people are used to potholes. This is on top of all of the other tough funding demands in Texas, like school funding. That takes away the interest in this. If a session occurs in the next five to seven years when we have plenty of jails, education straightened out, and no crime then maybe it will get passed. But for the first time in a long time, the infrastructure has become a topic of conversation at the federal and state level. It may not get as high a priority as...There may be other alternatives for funding out there, but this is the quick and easy one. It has a direct relationship to an existing tax. Indirectly, we do receive some of it, but not for maintenance. All of it, unless it is a state or federal

roadway, goes for improvements or for capacity of the roadway. Whereas, as Mike indicated, our load is...We are a fairly new city. Most of our stuff is twenty years or less old. But, it is going to start being a cost factor regardless of how well it was built, especially in areas where the water and sewer lines cause a lot of problems. It is hard to draw the line at where you get those dollars and where you allocate them because, one way or another, it goes to some degree of road improvements. With the Clean Air Act and all of the other environmental things that we are dealing with today, the issues are going to be alternate fuel conversion. ISTEA has some of that. There is going to need to be greater federal and state help in dealing with those things.

***What is your general impression of road conditions in Plano?*** We have a citizen survey. We are starting to hear a lot more about congestion. We, along with a lot of other cities, have really been working on the signalization issue. We don't get any negatives about the condition of the road. We certainly do about the congestion and traffic flow. We get comments about getting to the airport, and things like that are not really in our control.

***How often is that citizen survey conducted?*** Sporadically. We have had three over the last twelve years. One in the early 1980's, one in the mid-1980's, and this one was just completed about six months ago.

## ABSTRACT

**CITY:** San Angelo  
**OFFICIAL(S)**  
**INTERVIEWED:** Will Wilde, Director of Public Works  
**DATE/TIME:** June 24, 1993/9:00 a.m.

<b>ECONOMIC/ REVENUE</b>	<p>The economic climate is stable. Their agricultural based economy provides limited growth possibilities. Funding for streets: 50% from local sources and 50% from the federal Community Block Grant. Of the general fund, \$250,000 is allocated for sealcoats, and the same amount comes from CDBG funds. From the general fund, they get \$180,000 for overlay projects.</p>
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	<p>A visual inspection of streets is conducted each year to determine which streets to maintain. The general condition of roads is good. Some major arterials in isolated areas could use more attention. The major problem is reconstructing arterials. Arterials are being overlaid with 1 to 1.5 inches of asphalt every five to seven years. They are not able to expand arterials for additional traffic. Residential streets are in good condition and are sealcoated every seven to eight years. In the next five to ten years, Mr. Wilde does not believe that streets will be kept up to this level unless the city takes bond initiatives.</p>
<b>PAVEMENT MANAGEMENT SYSTEM</b>	<p>Mr. Wilde stated that San Angelo does not have a pavement management system nor do they have a quantitative assessment of roads. They have looked at some systems, but budget constraints have kept them from purchasing one.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** San Angelo  
**OFFICIAL(S)**  
**INTERVIEWED:** Will Wilde, Director of Public Works  
**DATE/TIME:** June 24, 1993/9:00 a.m.

*What is your perception of the economic climate in San Angelo?* In general, I'd say it's stable. It's not really subject to large scale developments, real rapid growth, or anything like that. It's more of an agricultural type base economy in this area. Large manufacturing, any kind of industry like that, we are fairly limited as far as we may have only two or three companies that employ large numbers of individuals.

*Is most of your funding for roads local, or do you get federal and state funds?* 50/50. Half is local and half is federal funding through Community Block Grant Funds.

*Local money is derived from the general fund?* Yes, from general fund taxes.

*Are there any bond issues for construction or reconstruction?* It's been so long since there was a major road project done...about the extent of our road programs is maintenance of existing roads.

*What about a pavement management system?* As far as a computer program, no we don't. *Do you have any type of quantitative assessment or rating of roads? (numerical or good, failed, excellent...)* No, we sure don't.

*How do you keep track of the condition of roads?* That's a good question...a lot of it is just an annual visual inspection. Our street superintendent keeps his own log of roads that he has sealcoated and any maintenance work that he has done. It's not any computerized program. Based on that, he will do a visual inspection of each street each year. From that, he will set up which streets he is going to do maintenance work on the following year.

*Mr. Brown said that you have a certain amount of funds set aside each year for almost failed roads for reconstruction?* Yes. The way our funding is set up for road maintenance is we budget right at \$250,000 of general fund revenues for sealcoating roads. About the same amount comes from Community Development funds and about \$180,000 from general funds for general street overlay programs. The general assessment of the general condition of the roads, the residential streets, I'd say they are in good condition. Some of the arterial or major arterial streets, some isolated areas, could use more attention

than they are receiving right now.

***We were talking with Midland and Odessa. Because of the time when the cities were founded, they see, in a period of six to eight years, streets being critical. Many of the roads will reach that age where they will need major work at that time. Is there a relative period here?*** As far as major work, it depends on the classification of the street. Residential streets...gosh..you can go almost a lifetime...as far as the basic subgrade construction streets here, it has been fairly good. So, we don't have a lot of problem with residential streets. The major problem is the reconstruction of the arterials. I would say a ten year time frame for major work on arterial streets.

***Going back to the pavement management system. Have you considered a computer program?*** We have looked at them, but budget constraints have kept us from pursuing any further with it.

***How long until you think you will be able to get one set up?*** I really don't know. We haven't gotten that far yet.

***You're overall impression of roads here is fairly good? Right.***

***Have you experienced any changes in traffic patterns and/or the traffic mix?*** No.

***What about major projects?*** The only major projects really done are accomplished and funded through the state highway department. Luckily, some of our major arterials are state roads. So, the state graciously rebuilds and maintains those for us. If that wasn't the case, we would have some major problems as far as meeting funding requirements for road maintenance.

***What percentage of preventative maintenance are you actually able to do with available funds?*** If I had to put a number to it, I'd say about 50%, if you consider the major capital costs and investment we should be putting into our major arterials; that's the area we're lacking. We are doing good as far as maintenance of residential streets in the sealcoat program where we're coming back every seven to eight years and reseal those. So, those streets are staying in real good shape, but the arterial streets are only seeing overlays of one inch to one and a half of asphalt every five to seven years. Just the deterioration of the street end of the traffic and eroding of it isn't being addressed; where we're going in and just putting in...reconstructing a street or expanding it for additional traffic, that part is what's being missed right now.

***What do think road conditions will be in five to ten years?*** It's hard to say. As far as the major streets, right now I'd say they're in good condition, but they will be continually deteriorating. We won't be able to keep them up to that level unless the city, either through bond initiatives or find the money to fund those projects.

*Do you see that happening?* Maybe in two to three years, but not before then. I just don't see it happening. Because right now, all you hear from government is cut spending...do more with less, and we've already done that for the last five to eight years is what the public doesn't realize. There is no more where you can cut. So, what will have to happen is just total failure. The public is going to have to realize that you're going to have to put more money into it to maintain these things. So, you may see some major failure of some water systems and roads and different things like that to get their interest back into those projects. It's unfortunate, but that seems to be the way it happens. We just went through it on our sewer. Everybody complained about paying \$3 for sewer in this town. Now, they're paying \$11 to 15, but we have to go through a major catastrophe in our sewer system before they recognize the need to put investment into it.



## ABSTRACT

**CITY:** San Angelo  
**OFFICIAL(S)**  
**INTERVIEWED:** Stephen Brown, City Manager  
**DATE/TIME:** June 23, 1993/3:30 p.m.

<b>ECONOMIC/ REVENUE</b>	The economic climate has improved over the last three to four years. It is growing at a rate of 2% per year. They have a low unemployment rate compared to the nation and the state. Several local industries are showing growth potential for the next couple of years. The tax base has declined over the last four years, but this year it grew slightly. Developers put in streets and there are no impact fees. New construction is paid for by bonds. A portion of the sales tax goes into a hot mix fund for renovating major arterial streets.
<b>ISTEA FUNDS</b>	No ISTEA funds have been received. Mr. Brown stated that TxDOT had not finished the guidelines for the application of those funds. He also stated that they just got through holding a public hearing last week in San Antonio.
<b>RELATION WITH LOCAL MPO</b>	San Angelo is the MPO.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	There are approximately 490 miles of road in San Angelo. The city spends approximately \$1.5 million a year on maintenance of existing streets. A quarter of a million is spent on major arterials. The spending priority is maintenance. Roads are considered to be in excellent condition, even with a budget shortfall.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	They use a modified program that they developed. They have a complete inventory of all streets. Streets are given a numerical rating. They are inspected annually and updated on the report if the priority has changed from the previous year.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** San Angelo  
**OFFICIAL(S)**  
**INTERVIEWED:** Stephen Brown, City Manager  
**DATE/TIME:** June 23, 1993/3:30 p.m.

***Economic Climate in San Angelo:*** It is much improved over three to four years ago. San Angelo grows historically at a rate of 1.5 to 2% a year. Last year, we were back about 1.3 to 1.4%, and this year we anticipate about 2%, and that has been a sixty year history of San Angelo. We are seeing construction renewed, and home building starts are up again. We are seeing accounts of sewer, water, and electrical going back up again. We have a very low unemployment rate compared to the nation and the state. So, things are much better here than they were three to four years ago. ***Do you anticipate the same sort of trend of 1.5 to 2% growth in the future?*** I am more optimistic...I see somewhere in the next three years that there will be, not a boom, but another spurt of maybe a little over 2% in the next three to four years. ***For what reasons?*** One, San Angelo, unlike most West Texas cities, has solved its water supply problems. San Angelo has more water supply per capita than any metropolitan city in the State of Texas. Number two, San Angelo is a very conservative community in terms of fiscal responsibility. We are very responsible fiscally in that when the downturn in Texas started about five or six years ago, we tried to get out in front of it, we're talking about our City Council and our staff. We started deleting costs in government trying to accommodate the downturn in revenue we didn't have and property values that we also didn't have. So, we weathered that, we think. The proof will be in the pudding, to see if we do grow like we think. Number one, our Air Force base is going to see significant growth in the next two to four years. It's already started right now. The General Telephone is a regional headquarters in San Angelo, and it is a healthy situation. They are adding Ethacon(sp?) into the healthy situation. You will hear comments to the contrary, but I think they aren't true. Those particular industries are showing growth. There are other indications here that I'm not letting me talk about that some things are going to happen in the next year to two years. I think we'll probably be in front of most West Texas cities as far as growth percentage wise.

***Have you experienced a declining tax base?*** The last three or four years, there was a slight decrease, but it is stabilized. It's not significantly at all declined; in fact, it's growing. This last year, it grew a little bit, and we expect it to grow a little bit more this year.

***What about funding for roads and bridges? It's tough. Is most of it local, or is there any federal or state help?*** There's some, but very little. Very little. San Angelo spends in excess of, well I'd give you the exact figures, but I'm afraid I'd misquote something. We have 490 miles of streets in the City of San Angelo. There is approximately 44 miles of incorporated area. The city spends, just on the streets, maintenance section, not construction of new streets, but maintenance of existing, about \$1.5 million a year. That doesn't include renovations. In addition to that, the city spends about another quarter of a million on renovation of major arterial streets. That's a program we initiated back in '84 or '83 and have been successful with it. We have a planned program whereby an X number of miles are renovated each year as far as arterial streets and far more residential streets that are scheduled for maintenance and seal coat or crack seal or something like that. We have a projected budget each year that I can tell you five years from now what we ought to be spending, whether or not we'd be doing it. We've got a program that certain streets that each year come on plan for maintenance. Now, this budget is, therefore, probably, can count renovation, maintenance, and everything about \$2 million. (He calculated this figure...) That represents about close to 6% of our general fund budget.

***Have you received any ISTEA funds?*** No, but that is going to be a bone of contention for cities that are not eligible to receive ISTEA funds. TxDOT has not even finished its guidelines or requirements for application. In fact, they just got through holding one of their final public hearings last week or two ago in San Antone, which we attended. We anticipate receiving ISTEA funds. Of course, its the problem of Highways and Transportation wants to see that damn money spent on roads and streets. There are other uses that are necessary in our opinion that they can be used also, not just vehicular traffic systems, but for pedestrian as well. I'm very much aware that the Highway Department's feelings are contrary to what the City of San Angelo feels.

***How long do you think it will be before you see some of that money?*** Hopefully, we will get some this next fall.

***What about your relationship with your local MPO?*** We are the MPO. The city of San Angelo is the Metropolitan Planning Organization. We are the designated MPO.

***What is your spending priority as far as roads and bridges?*** It is mainly maintenance. Keep what you've got in good shape.

***Do you have a pavement management system?*** We've got a modified program that we developed on our own, and that's what I said a while ago. We have a complete inventory of all of our streets. We inspect them annually and update that report annually as to whether or not we have changed our priority this year from last year. We keep extensive records on our costs per each street. We know, for instance, if we have a certain troublesome street, that we have had certain failures in that are not necessarily because of

the asphalt or the base or other things, we document and say what each cost of renovation or maintenance has been. We know what each square mile or each linear mile of street maintenance has cost us.

***Do you have a quantitative assessment or ranking of the roads? Yes. Is it numerical or.....? Yes, it's numerical.***

***What percentage of planned maintenance is able to be completed with the available funds?*** That varies with the budget year we're in and the priorities that the council may have or the staff may recommend. A value judgement by the administrative staff is the recommendation of the whole budget. It may vary. It can be determined by how bad the weather has been.

***Has there been a large budget shortfall in the last few years?*** We've had a budget shortfall on everything in the last couple of years, not just streets, but fire, police, and all infrastructure items. We just haven't had the money to do what we want to do. It doesn't mean it shouldn't have been done, and that doesn't mean we won't do it eventually, but that is going to vary. You have to go back to the philosophy, young lady, that we're not.....in a time of economic stress, we're not going to raise taxes for the hell of it. I think that's what you're trying to imply, isn't it?! (*We answer, "No, not at all."*) Okay, I apologize.

***How are the road conditions here? Even given the budget shortfall?*** Absolutely. Because we worked at it for about eight years before we got into trouble budgetwise. It has been a priority with our council and our staff since about '82. There is not one unpaved street in the City of San Angelo.

***Are developers responsible for putting in roads? Yes, 100% of the cost. Do you charge them any impact fees?*** No.

***Are bonds used for construction or reconstruction?*** Only new construction streets. Very seldom. I cannot remember the last time we issued bonds except to participate with the highway department in the construction of widening the highway system where the right-of-way was part of the city's responsibility.

***Have any major road projects been undertaken lately?*** I just got through saying we renovate a certain number of major arterial streets each year. We do major arterial streets that we see are going to fail, are failing, or have failed. We schedule so many miles per year for major renovation where we go in and excavate, replace the base with an improved compaction system situation, and a new asphalt to a hot-mix surface.

***This comes from the general fund?*** Yes. We dedicate part of our sales tax to a special, what we call, a hot-mix fund for renovation of arterial streets.

## ABSTRACT

**CITY:** San Antonio  
**OFFICIAL(S)**  
**INTERVIEWED:** Johnny Krawczynski, Director of Streets and Drainage  
**DATE/TIME:** July 6, 1993/2:00 p.m.

ECONOMIC/ REVENUE	Funding for street maintenance comes from the general fund which is sales tax and property tax. Reconstruction or construction is funded by bond programs. A certain amount of funding is allotted to sealcoating and general maintenance. They would need \$450 million to keep up with road maintenance, but they are only receiving \$3 to \$4 million. They received \$4 million from the bus system, but it is not an annual source of funding.
ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND	Field personnel, the street superintendent, and Mr. Krawczynski decide which streets are sealcoated with available funding. Road conditions are fair. Sealcoating is being contracted out for the first time because they are unable to keep up with the demand. Sealcoating goals this year will not be reached due to a lack of funds.
PAVEMENT MANAGEMENT SYSTEM	They are not currently using one. They have been trying to budget for one, but it has not been successful.
MISC	San Antonio has a thoroughfare plan, but lack the funding to implement the plan. (Mr. Krawczynski also provided us with extra material concerning maintenance and funding for maintenance. It shows the budget shortfall. This material is included in San Antonio's file.)

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** San Antonio  
**OFFICIAL(S)**  
**INTERVIEWED:** Johnny Krawczynski, Director of Streets and Drainage  
**DATE/TIME:** July 6, 1993/2:00 p.m.

To start off with, I am in charge of street maintenance and street drainage. Basically, we are maintenance oriented and that is all. When you say bridges...it is really sad...we are not funded with either manpower, equipment, or money for materials to do any maintenance to bridges. We only do repairs to bridges if something is drastically wrong. If we have a hazardous problem, we will send a crew down to do preventative maintenance to the bridge. Otherwise, we don't go looking for trouble. We wait for trouble to find us. We don't have the dollars or the people to maintain the bridges.

*Where does your funding for maintenance of roads come from? Is that from local, state, or federal sources?* As far as funding, it comes from the general fund. The general fund usually includes property taxes and sales taxes.

*Who covers reconstruction and/or construction?* Total reconstruction is usually done through a bond program...bond programs or capital improvements programs or some sort of special fund like that. That is handled by our engineering staff downtown. They usually hire a consulting engineer to do the plans. Then, they advertise for bids from private contractors. We have a small crew that we use to do reconditioning. It may be a block or two blocks long. We recondition roadways to put them into a usable or passable state. A total reconstruction, we don't do. It is always handled by private contractors.

*Do you have a pavement management system?* No, we have no pavement management system. Nothing at all. We have been trying to budget some type of pavement management system. It has not been successful. We have no kind of maintenance system at all. We are way behind times.

*Do you have a systematic survey or inventory of the streets?* I keep an inventory of the center-lane miles of streets. As to the condition, no. I keep center-lane miles of the streets, not lane miles. They may be 32 feet wide or 48 feet wide. *Do you update this information?* That was done a long time ago by our own field hands. They did an inventory on the miles of the streets. As subdivisions are being accepted or as new streets go into virgin land, we add them to that inventory.

***How do you determine where your maintenance funds will go?*** First of all, from past history. We allot x number of dollars for just general maintenance. We know from past history that it will take x number of dollars just for general maintenance. Then we allot x number of dollars ---the only thing we do in-house is sealcoating. Our field personnel and the Street Superintendent and myself get together, and we determine which streets will be sealcoated. We make that judgement ourselves. ***Does that have to be approved by the Council?*** It is within this organization. We work up our own program and with the blessing of the Director of Public Works, that is as far as it goes. Most of the time, he just eyeballs it. He doesn't give us a hard time about it.

***What is the average age of the streets in San Antonio?*** We like to have a program of...Any type of preventative maintenance should be done every six to seven years. There is no way we have the funds for that. I know that some streets are at least 20 years old altogether. Basically, the dollars that we get and the conditions of the roads dictate which ones we go and attack.

***What is your general impression of road conditions in San Antonio?*** Well, let me put it this way. Besides the bond project, the capital improvements project, for total reconstruction, we have been getting a small amount of dollars in the range of \$3-4 million for contract preventative maintenance. Besides our general maintenance in our sealcoat program, we get between \$3 and 4 million for contracted preventative maintenance; that includes asphalt overlays and slurry seals on some streets. This has been happening the last five years. We have been getting x dollars for this, and the streets have been improving. Overall, San Antonio is, if you want to go good, fair, and bad, fair. I wouldn't go to good or anything as extreme as that.

***When we talked to Alex, he told us that you had gotten a total estimate several years ago of the total amount of money that need to be spent on maintenance. Was that done lately?*** No. About three or four years ago, we presented the Council with a proposal where we wanted to do preventative maintenance to the streets every six to seven years. I can't remember exactly the dollar figure. It was like \$450 million that we would have to get appropriated every year to try and keep up. They were like, "Where are you going to get \$450 million each year to do preventative maintenance?" We have been getting like \$3-4 million annually to do a little bit of preventative maintenance. It is concentrated on major thoroughfares and collector streets. That is where those dollars have been concentrated.

***Do you have an optimal thoroughfare plan?*** Yes, we have a plan. Like all things, the plan is no good if you don't have any dollars the following year. The weather will...Today, we may look at a street and when we get the money a year from now, it has deteriorated further. Two things have been hurting us in the last couple of years. We have had a tremendous amount of rainfall the last few years. And, the dollars have not been coming like we anticipated. So, a program of planned streets sort of falls by the wayside if

everything doesn't fall behind it. A lot of times, we have to just rethink and reschedule. A plan doesn't work very well if the dollars don't come right behind it.

*Over the past ten years, have you started to come closer to meeting your maintenance needs?* I will give you some information to show that we are accepting streets for maintenance and annexing streets while our funding has remained steady or been decreasing. This shows that the miles of streets have been increasing and the dollars to maintain have been the same or a little bit below. I am talking about the money to buy material for overlays. Last year we had like \$3.5 million. This fiscal year, they cut our budget by \$500,000. So, we are going backwards as far as maintenance of streets. We have really got out of a planned program and into reactive maintenance. We are putting out fires more than we are doing a planned maintenance program because the dollars have not kept up with time and the expansion of the city. We have had some annexation and some subdivisions that have come on board, and the dollars have not increased to cover that stuff. I will xerox some of this for you. Rainfall plays a big part in our problem. The rainfall increases our troubles. I went back over this to 1981 or 1982. Our personnel for street maintenance has been decreasing. It is just budget cuts. The street miles went from 2,600 to a current projection of 3,000. The miles have increased and personnel has decreased. In terms of asphalt we have bought per year...Let's take a look at the rainfall, we had a total of about seventeen inches for the year. Let's say we used almost 8,000 tons of asphalt. In 1991-1992, we had fifty inches of rainfall over nine months and used 13,000 tons of asphalt. It plays a big part in a sealcoat. We used to sealcoat 132 miles. We used to get about one hundred miles of sealcoat a year. We have not been keeping up to that pace primarily because we don't have the personnel, we don't have the dollars. Our general maintenance has just overtaken us so that we can't keep up with both programs. The people that sealcoat also do general maintenance. Everybody goes back to general maintenance to keep us out of lawsuits or trouble. We have not been keeping up with preventative maintenance. At the beginning of the fiscal year, I have to work up a program for budget purposes. Every month I update this thing. There is always some little pet project that a council member wants added on. You say you don't have the money, and he says put it on, and you find the money. It is part of the game. You just have to realize it. We have three street maintenance yards, and you are located at the one right here (Points to map). Each yard is responsible for certain territory.

VIA Transportation, the bus system, gave us \$4 million. It is for riding over our streets and tearing up our streets. What happened here is that the council members raised so much hell about VIA riding on our streets that they finally pressured VIA into giving us \$4 million. *Does VIA give you a list of their routes?* Yes, this money had to only be used on the bus routes. We got all of their bus routes, and I plotted them out. I determined which streets were the worst ones and which ones needed some help. We don't get this every year. *Where does the funding for VIA come from?* I'm not real sure about that. They apply for a lot of federal grants.



I'm going to contradict myself now. In the '92-'93 fiscal year, we are going to contract sealcoat. We are so far behind on preventative maintenance that we are going to contract this out. This is the first year that we have contracted out sealcoat. The reason we don't like to contract sealcoat out is because the contractors that we have had experience with have only sealcoated highways. They don't have the experience with sealcoating city streets. It is much more citizen oriented, much more public oriented. You have the stops and starts. You can't just have them blowing and going. You have to worry about traffic. This is the first year that we are contracting sealcoating. ***You are contracting sealcoating because...?*** We can't keep up. These streets need attention. They are in a condition where they need something done, and I can't keep up. The contracts are going to be for major arterial or collector streets. City forces are staying strictly in residential neighborhoods. This is a map showing the four general areas where I want to do slurry seals. We are going to contract out some slurry seals there. This shows the sealcoats that will be done by city forces. We have only sealcoated 20%, and we know that our fiscal year is ending. That is 20% of 1,400,000 square yards. According to my budget, the money that I need to buy the materials for this exceeds my budget. Through the summer months, we average about \$350,000 a month in material costs. I have about \$200,000 a month left. I am \$100,000 short. We have four months left. So, I am going to run about \$600,000 in the hole. I can't do that. So, to balance the budget, I am going to have to quit sealcoating. This has been the wettest...The weather has played a big part this year. We had almost thirteen inches of rainfall in May. The rainfall in May tore up a lot of streets so that all we do now is general maintenance. You can see that this year I am not going to finish this project 100% because I don't have the dollars to buy materials. Then we will get further behind in our preventative maintenance. Then the streets will deteriorate faster. It is like a car. You change the oil so the car will last longer. The roads are the same way. You have to do something to make them last longer. We're not. We're taking one step forward and two back.

***What are your soil conditions?*** Soil condition is a big problem here. You have an expansive type of soil. In wet weather, the soil will expand in this part of town, and then your roads are heaving up and down. When you get dry weather, the soil contracts. You start getting cracks. After the road cracks, water gets in it. The soil in this town is poor.

## ABSTRACT

**CITY:** San Antonio  
**OFFICIAL(S)**  
**INTERVIEWED:** Alexander Briseño, City Manager  
**DATE/TIME:** July 6, 1993/10:00 a.m.

<b>ECONOMIC/ REVENUE</b>	<p>Things are improving. They had four to five years of declining tax base but are projecting a 1% increase (new growth) this year. The growth is the result of increasing sales tax revenue from tourists. In 1992 there were 21,300 new jobs in San Antonio. Local revenue comes from sales tax, property tax, and city public services. They expect a growth in all three areas for FY94. They currently have \$50 million outstanding debt. Bexar County receives money from the road and bridge fee on vehicle registration. This money is spent outside of the city limits even though 80% of the vehicles are from San Antonio (taxation without representation). They tried to initiate state legislation to redistribute these resources. The legislation failed, but they will continue to fight.</p>
<b>RELATION WITH LOCAL MPO</b>	<p>San Antonio has a good relationship with COG. They seem to have a good relationship with the state in terms of infrastructure.</p>
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	<p>They should be doing maintenance on a seven year cycle but at the current level of funding, they are on a 20 year cycle.</p>
<b>NAFTA</b>	<p>San Antonio has a cultural and geographical advantage for NAFTA. It is the largest city at the intersection of ABBE and I10, close to the border. Briseño expects that infrastructure needs will be left to the state. In the past, not only has the Federal Government not come through for funding needs, but they have caused a real strain on the city's budget with unfunded mandates.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** San Antonio  
**OFFICIAL(S)**  
**INTERVIEWED:** Alexander Briseño, City Manager  
**DATE/TIME:** July 6, 1993/10:00 a.m.

**THIS IS NOT TRANSCRIBED FROM A TAPE RECORDING**

*Economic conditions in San Antonio:* Things are improving. We have just finished a five year financial forecast. We have gone through four to five years of a declining tax base but are now projecting at least a 1% increase in the tax base. We have the lowest tax rate among the 10 largest cities in Texas, and in the 1990 Census, we had a poverty rate of 20 to 22%. We have about a \$23 billion tax base. That 1% increase is new growth. By this, I mean additions to the old tax base. San Antonio's growth is the result of two conditions: (1) we have an insulation against the change in the national economy because of tourists (sales tax revenue is increasing), and (2) in 1992, there was an increase of 21,300 new jobs in San Antonio (the third highest increase in the country of net new jobs). The new jobs have resulted in new construction; building permits are up 75 to 80% from this same period last year. This is close to the early 1980's peak in housing starts. We are currently developing comprehensive economic initiatives. At the federal level, there is a reduction in defense spending which is a real threat to Kelly Air Force Base. We are looking at other resources such as aviation related industries (Federal Express and Fairchild). We are trying to attract industry for trained workers to give them alternative jobs so that San Antonio is not as vulnerable to cuts in the defense industry. The primary local revenue sources are sales tax (\$77 million), property tax (\$75 million), and city public services (\$115 million). We expect a 5% growth in sales tax, a 3% growth in public service revenue, and 1% increase in property tax for FY94. We have \$49 to 50 million in outstanding debt, the bulk of which is for streets and drainage. We expect a May 1994 bond issue of \$100 million which will focus on the quality of life issues.

*Do you believe San Antonio will benefit from NAFTA?* San Antonio has a geographical and cultural advantage for NAFTA. We have ties to Mexico. In San Antonio, there are four trade offices of four states in Mexico: Jalisco, Nuevo Leon, Tamaulipas, and Morelos. We opened offices in Monterrey and Guadalajara in October 1991 and October 1992, respectively. The benefits of this will be increased international cargo at the airport from Mexico. There are six international trade zones which have logistic centers. We are in a zone and will house logistic centers where goods will be imported, duty free, from Mexico. Then, some value added manufacturing will be done to the goods. There is no duty on the products until they leave the logistic centers. In 1990, there was \$24.9 billion

of trade coming through South Texas. Of this, \$14.9 billion was exports and \$10 billion was imports. From Brownsville to San Diego, the largest volume of traffic from Mexico to the U.S. occurs in Laredo. San Antonio is the largest city at the intersection of ABBE and I10, close to the border. ABBE from Laredo extends to Canada, and I10 reaches Los Angeles and Houston. This allows for tremendous distribution opportunities. These factors should lead to a slow steady growth in the economy and the opportunity to further diversify the economy. Right now, our economy is focusing on the military and tourism, but we need to diversify to include free trade, biomedical research through the University of Texas Health Science Center and the Southwest Foundation for Biomedical Research, and telecommunications through QVC, Citibank, American Airlines Reservations, and West Telemarketing. This additional telecommunications industry would employ approximately 21,000 people. Southwestern Bell Helicopter is relocating 500 executive jobs to San Antonio from St. Louis for expansion to Mexico.

***Do you expect to receive additional revenue from the Federal Government for infrastructure needs if NAFTA is passed?*** In the past, the Federal Government has not delivered for these kind of needs. Not only has the Federal Government not come through for us, but they have caused a real strain on the city's budget with their unfunded mandates. One example is the Clean Water Act of 1972. It developed sewer restrictions which required sewer replacement and expansion. Seventy-five percent was federally funded, but 25% of the cost became a local burden which impacted the citizens by causing sewer rates to triple. I expect that any transportation needs will be left to the state.

***What is your relationship with the Council of Governments?*** We have a real good relationship with COG. (San Antonio seems to have a good relationship with the state in terms of infrastructure.) We will continue to work with the Transportation Commission for future infrastructure needs.

***What major street projects are you currently working on?*** We have a \$90 million dollar project between 410 and 1604; the Medical Center is in that area. The intersection of Wurzbach and I10 is the highest volume intersection in town, mainly because traffic is flowing to the medical district. We will try to diffuse this traffic before it reaches Wurzbach by widening Huebner Road to a 6 lane divided highway. We hope to diffuse this traffic onto Lockhill Selma or Military Highway.

***What are the general road conditions in San Antonio?*** We should be doing maintenance on a 7-year cycle. At the current level of funding (\$15 million) we are on a 20-year cycle. It would take \$45 million per year to meet the target of 7 years. It would take a 40% increase in property taxes to make the extra \$30 million to meet the maintenance needs. This is obviously not a likely option. The county receives \$10 from the road and bridge fee on vehicle registration, 790,000 vehicles. Bexar County receives \$8 million. The money is spent outside of the city limits, but 80% of these vehicles are from the City of San Antonio. This is truly taxation without representation. We tried to initiate legislation at the state level which would require some kind of formula that would redistribute these

resources by lane miles or population..... something like that. The legislation failed, but we will continue to fight for this.

*Do you think enabling legislation will be passed that will allow cities to share in the gas tax?* I don't see it happening.

## ABSTRACT

**CITY:** Waco  
**OFFICIAL(S)**  
**INTERVIEWED:** Kelvin Reinhardt, Street Superintendent  
**DATE/TIME:** July 21, 1993/11:00 a.m.

<b>ECONOMIC/ REVENUE</b>	A ½¢ sales tax is dedicated to street reclamation.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	There are 510 miles of streets in Waco, and 140 miles are in need of reconstruction or reclamation. They are currently reconstructing about 3 miles per year and reclaiming about 10 to 12 miles. They hope to start a new program that will increase reclamation to 15 miles. Mr. Reinhardt said that they are unable to adequately maintain the streets in Waco. Street conditions are poor but improving. Only 25 to 35% of what needs to be done in terms of maintenance is actually accomplished. Contract work such as street overlay and reconstruction is handled through Engineering Services.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	The City Engineer, Larry Growth, is familiar with the pavement management system. Mr. Reinhardt said that it is a street inventory and provides a schedule for maintenance.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Waco  
**OFFICIAL(S)**  
**INTERVIEWED:** Kelvin Reinhardt, Street Superintendent  
**DATE/TIME:** July 21, 1993/11:00 a.m.

Well, if you are familiar with Waco at all, you can tell that in the past they haven't met the needs of maintaining the streets. We have some 510 miles of streets. Right now, about 140 of them are in need of reconstruction or reclamation. For the past twenty or twenty-five years, the Street Division was severely understaffed. All they did was just minor maintenance, just enough to get by. So, what happened in the past twenty years was that you lost a lot of streets that you could have saved, had the proper maintenance been done. It has really put us in a bind now. We've got 140 miles of streets that we are knocking out. Back in 1980, they made some improvements in what we were doing. But, the new program really started in 1990. We went from about three miles of streets reconstructed a year to about thirteen or fourteen miles. Our goal is to, by the year 2002 or 2003, is to have those 140 miles either reconstructed or reclaimed. The big increase that you see there is that we are still only reconstructing about three or four miles but we are reclaiming about ten or twelve miles. Hopefully, this year there will be another program started that is going to speed that up to fourteen and fifteen miles reclaimed per year. There is a good chance that we can move our goal from the year 2002 to 2000 or even 1999. That is our objective right now. As far as saying that we adequately maintain our streets right now, the answer is no. We are doing the best we can with the staff that we have. We are working in that direction. Then, the correct maintenance can be picked up at that point.

***Where does the funding for street maintenance come from?*** I don't handle the funding. Some of it, I know, comes from sales tax. There is ½¢ or 1¢ dedicated directly to street reclamation. That is how we came up with the money to reclaim the additional ten miles a year. ***Was this begun fairly recently?*** I think that was set aside around 1989. The program got kicked off in 1990. That is when I came on board.

***Do you happen to know if you receive any state or federal funds?*** There again, I know that we do, but I couldn't tell you how much. I know that we do receive some grants, some federal funds...especially in the older neighborhoods.

***Do you use a pavement management system?*** The City Engineer could answer that. I do not handle any pavement management system. He has a street inventory where he keeps up with what type of street they are, when was the last time something was done to them, what was done, when the next scheduled maintenance should occur. Since 1990, we have

made a great improvement in keeping up with that kind of information.

***That information is then given to you?*** Anything that is done by contractors like street overlay or reconstruction is handled by Engineering Services. I have some input as to which streets we might do, but most of that is handled through Engineering Services. They have the structural inspectors who inspect that work. ***Contractors do overlays and you handle...?*** We handle maintenance like pothole repair, surface replacement of small areas, etc. Our division is responsible not only for streets but also for drainage.

***What do you consider to be the condition of the streets in Waco?*** Poor, but improving. Like I said, when you have 140 miles out of 510 that are in bad shape...overall street condition is poor. You really want that number to be less than 10%...to be down in the 3-5% range.

***What percentage of the maintenance that needs to be done in a given year is actually completed?*** Well, I would say that because of funding restrictions, only 25 or 35% actually gets done.

***Does the city use bonds to pay for reconstruction?*** Yeah, there are some bonds. The City Engineer would be able to help with that. The City Engineer is Larry Growth. His number is 751-8540.

***All of the minor maintenance done in Waco is done through the Street Division?*** Yes.

***Do you have any type of quality check program?*** No, we don't actually have a program. I know that Austin has one. We've been looking at it. When I took over the job in 1990, the quality of the repairs that they were doing was very poor. I have worked very hard with the action crews to show them the correct way to do things. Quality has definitely improved. We are still not exactly where I would like us to be. ***Are you on the road to getting some sort of quality program, similar to the one that Austin has?*** They have been looking at it. I have looked at it at some seminars. As far as I know, no date has been set to start using the program.

The only thing that I would say about bridges is that normally there is an inspection team that comes through. I think that it is once every five years. I have gotten one report from somebody who has come through and inspected our bridges since I got here in 1990. ***Is that bridge report from the state?*** Yes, I think that is state. ***Approximately how many bridges are there in Waco?*** The best I can remember, there are twelve or fifteen.



## ABSTRACT

**CITY:** Waco  
**OFFICIAL(S)**  
**INTERVIEWED:** Mike Hatchell, Assistant City Manager  
**DATE/TIME:** July 21, 1993/1:00 p.m.

<b>ECONOMIC/ REVENUE</b>	Waco has been able to attract a number of industries in the past 18 months. During lean years, Waco was able to put into place a strong economic development and recruitment organization. They have not received very much state or federal funding for highways. The main source of local revenue is bonds and some sales tax. When the state allowed a ½¢ sales tax, the city could not legally earmark the funds, but they promised the citizens it would be used for debt service for streets. Waco has had an erosion of their tax base. The tax decline wasn't as bad as other areas because of the diversified economic base. An additional \$1.5 million was allocated to their overlay program. No impact fees are charged. They are currently spending \$8 million a year on streets. To get streets to an optimal level, it would take \$70 million.
<b>ISTEA FUNDS</b>	They have received no funds from ISTEA, but they are requesting funds.
<b>RELATION WITH LOCAL MPO</b>	They have a new MPO who is very aggressive. They have a good relationship with the MPO; she works for Mr. Hatchell.
<b>ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND</b>	They are using a recycling process where the old base is torn up and mixed with a lime stabilizer. It is then laid back down and covered in with a smooth surface. They do about 13 miles/year. Road conditions are poor but getting better. From the early 1900's to just a few years ago, there were no street specifications for developers. This resulted in many poorly built roads. "In some places, you really have to look to find any surface." Road conditions are expected to be in decent condition by 2005. This year is the first time that overlay is being done in a residential area. Only three to four miles of reconstruction is done per year.
<b>PAVEMENT MANAGEMENT SYSTEM</b>	It is used to prioritize streets for repair. It is handled through the Engineering Department. Mr. Hatchell is pleased with it. He is provided with a printout of the prioritization schedule; the schedule is divided by council district. It is a five-year program.

MISC	<p>Assessments: Residents could petition to have a street improved. Streets where the citizens were willing to participate in the cost had a higher priority. This meant more affluent parts of the community were being improved. Those citizens unable to pay assessments kept falling to the bottom of the list, which eventually put them into the total rebuild mode. Council realized this and they no longer use assessments. Now, a computer model is used to prioritize streets.</p> <p>County: The county "doesn't believe that the city is located in the county." The county does not maintain any streets within city limits. Sixty percent of the county's tax base is in the city limits of Waco.</p>
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**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Waco  
**OFFICIAL(S)**  
**INTERVIEWED:** Mike Hatchell, Assistant City Manager  
**DATE/TIME:** July 21, 1993/1:00 p.m.

*What is your perception of the general economic climate in Waco?* It is good. We have been able to attract quite a few industries to Waco in the last eighteen months. We have been very fortunate in attracting industries into the Central Texas area. *What do you see happening in the future?* We would optimistically like to think continued growth. We are at a real advantage being in the I35 corridor. We had a lot of lean years, and during that period of time, we were able to put into place a strong economic development and recruitment organization. It is primarily funded through the Chamber of Commerce. The city participates in the funding of it. We also have our own Economic Development Department.

*Is funding for roads and bridges mainly local? Do you receive much in the way of state or federal funds?* We have not received much federal or state funding for transportation, such as highways. We do receive federal funding or assistance on our mass transportation system. But, hopefully, we have a fairly new MPO. She is very aggressive, and I think that we have made a shopping list of things that we need to have funded. Looking around our area, it is our turn again to be funded.

*Have you received any ISTEA funds? No. Do you think that you will?* Yes, I do. If we start talking about ISTEA, I will have to get my MPO down here. Yes, we would like to see some of that. I am not that familiar...I depend so much on her. Some of the eligible things I find quite interesting, like historic structures that pertain to transportation and that sort of thing. I look at our suspension bridge right across the way over there. It is a natural. It meets all of the criteria. And, it needs some refurbishing right now. Yes, we are requesting funds.

*What is your main source of local revenue?* Bonds. That and some sales tax. *We spoke with Mr. Reinhardt this morning and he mentioned that a portion of the sales tax was dedicated directly to the roads. Is this true?* That is correct. When the state allowed the cities to increase their sales tax by ½¢, the city council in Waco made a promise. Our streets were absolutely horrible. Our council made a pact with our citizens that if they would vote to pass that ½¢ sales tax....We could not legally earmark the sales tax money for streets, but we could pledge to the citizens that we would set aside that amount of

money each year in general funds. So, that is what we have done. That generates about a million dollars a year. That has been used as debt service. You take that \$1 million out and get \$5 million. That is what we have been doing. This is the sixth year. We started a street program, adding \$5 million a year to the program, five years ago.

*You mentioned bond money. Have you had any trouble getting your bond programs passed?* Not at all because we have been using CO's (Certificates of Obligation). That does not require an election. But it still has the safeguards where if a person adamantly disagrees, they can come in and file a protest on it. We have been going that route.

*Have you experienced a decline in your tax base?* An erosion. We too have had some of that. The downtown area is coming back to life now. Eight years ago, it was like a ghost town down there. Just no activity whatsoever. The shopping centers attracted all of the stores away. We are in the process of negotiating with the Veterans Administration, GSA really, to build a multi-story federal office building right across the street. That would bring in about five hundred jobs right downtown. I think that we will see a renaissance of the downtown area...for service. I don't think we will see one for retail. But for restaurants and drugstores. We have been experiencing some tax decline. We didn't get hit as bad as some other areas when the fall started. We have Baylor and some things like that. We have a very diversified economic base. So, real estate hit us some but not like in other cities. *Do you think that it will get worse or improve?* I think that it has flattened out. It may dip a little more, but it is flattening out.

*From what you have said, you have a very good relationship with your MPO?* Yes. She works for me.

*What is your current spending priority, construction or maintenance?* We do some construction but that is primarily like rebuild or reconstruct. We have several different forms of street maintenance, and that is the most expensive one. Then we have a recycling process. We are very, very pleased with that. That is where we go in and tear up the old base. Well, several things have to happen. Utility lines have to be gutted. It has to have some base. We go in and tear that up. We mix in some lime stabilizer with that. We then put it back down and then come in with a smooth surface. In fact, Waco has been written up in several of the public works magazines about this program. We do about thirteen miles a year of that. It is a good program. High visibility. We have been able to get in and do a lot of residential streets. We have been very happy. This year, we have added an additional \$1.5 million to our overlay program. This is the first time that we have taken that into a residential area. It has always been more or less major arterial types. On the total reconstruct, we probably do three to four miles a year. It is very costly, and so we are very selective when we do that.

*Do you charge any impact fees?* No. In fact, we don't have assessments. We used to have assessments. What was happening was that you would come in with a petition, of

course, and we would look at it. Naturally, those streets were where the residents were willing to participate in the cost had a higher priority. What we found was happening was that the only streets that were being improved were in the more affluent parts of the community. Those who could not pay the assessment kept falling to the bottom of the list. We were using CD funds for some areas, but only \$.5 million a year. It wasn't very much. That was back before our recycling program and all of that stuff. So we were primarily in the total rebuild mode. The Council saw this and decided that we would no longer have assessment programs. That was good because that allowed us then to put all of our streets under a computer model that assigned point factors and prioritized the streets. That way, we could just go down the list.

***So you do have a pavement management system? Yes. Do you know what its name is?*** I have no idea; it is handled through the Engineering Department. I know that it works, and I know that I like it. They hand me a printout that shows me exactly what streets are up. If somebody calls me up and raises Cain about their street...But it does assign points to the streets, and we are very pleased with it. The Council likes it. ***So you basically follow that prioritization schedule?*** Yes. We have it by council districts so each Councilperson can see which streets are up for repair this year. It is a five-year program.

***How do you feel about legislation that would give cities a portion of the gasoline tax?*** The Texas Municipal League supported a bill similar to that about five or six years ago. That made some sense, if we could be assured that the tax would be distributed back to the communities. Of course, I used to be a City Manager in a smaller community and I wasn't nearly as excited about that then as I am now being in a larger community. I think there needs to be some funding mechanism to provide some assistance, particularly when you start talking about bridge refurbishment and rebuilding. That burns money in a hurry. I would be supportive of a bill like that.

***About what percentage of the maintenance that needs to be done in a given year is actually done?*** Well, our streets are in such a condition that I don't think that you could ever put enough money into it. The drawback would be the ability to get plans and specifications out and just getting contractors in. That would be the limiting factor. We spend about \$8 million a year now on streets. That is just about the maximum we can do. ***What would you need to spend?*** To get every street up to what we would like, about \$70 million.

***How would you characterize the condition of the roads here in Waco?*** Poor. Poor, but getting better. A number of things happened in Waco. Waco is an old town. It was founded in 1856. For many years, going back from the early 1900's to just a few years ago, they apparently did not have street specifications. A developer would go in and would lay down something, put in a little bit of base and a blacktop, and there was a street. Soon enough, the city had accepted that and was the proud owner of that piece of junk. Very little was done to maintain or improve. Over the years, it just caught up with us.

We tell the citizens that it didn't get like this overnight, so it is not going to be fixed overnight. We are really chipping away at it. We think that by 2005, that is the magic number, we should be okay. You have to understand that by then, some of the streets that we did four years ago will be falling off the other side. We will have to go back.

***What is the average age of the streets in Waco?*** It depends. It is different in different neighborhoods. We have some neighborhoods that are a hundred years old. Gosh, I don't know. I wouldn't even hazard a guess. We could call Engineering and probably get one if that would help. ***Some of the cities that we have spoken with have mentioned a critical period that will be coming up in six or seven years because of the age of their streets.***

***Do you see a similar critical period arising in Waco?*** We are there now. I mean, we are at a critical time right now. We have some streets in our older residential areas that, if you drive over them, it looks like you are driving over a series of potholes. In some places, you have to really look to find any surface. But, we are working on those.

***Do you have any projects in conjunction with the county or state?*** The county doesn't believe that the city is located in the county. I don't guess that you have ever heard that before? Sixty percent of the county's tax base is in the incorporated city limits of Waco, but they don't recognize that. They do not maintain any streets or any roadways inside the incorporated city limits. I have been in this business for twenty six years and one of the things that I have done for twenty of them is try to get alleys declared county roads. I haven't been able to do that. Alley maintenance is a problem. We have been fortunate in getting some EDA grants that have put infrastructure like streets and utilities in industrial park areas. We have worked well with the Highway Department. We have a very good working relationship with them. In fact, we are working on a project now. I called him the other day, and he said that he would take care of that.

***Will ISTEA make the process of obtaining federal funds more political?*** More political than they are now? More political than with sixteen Highway District Engineers? You have to understand that the Highway District Engineers are the last Barons in Texas. They are the ones who control it. The Highway Department is a very political creature. I don't know that it will be more political; I wouldn't think so. Again, if I were in a smaller city with a population of 10,000, I would be scared to death. This way, you can go to your District Engineer and get something done. That way you are competing or you have to put a project in front of a group of board members who are probably controlled by the big city, where ever that is. ***Since you are the big city, you aren't worried?*** Not as worried. The MPO and I have talked about this quite a bit as far as the structure of the board and that sort of thing. To assure that board or give them a higher level of comfort, we have assured them by having the chairs elected from the smaller surrounding cities.

## ABSTRACT

**CITY:** Wichita Falls  
**OFFICIAL(S)**  
**INTERVIEWED:** George Bonnett, Director of Public Works  
**DATE/TIME:** August 30, 1993/2:30 p.m.

ECONOMIC/ REVENUE	<p>The overall economy is fairly good. Conditions have turned around in the last year, as noted by sales tax revenues. The trend of improvement is expected to flatten out. Local funding is about 85% and state, via federal, is about 15%. This funding pattern is going downhill due to the decreasing ability on the part of the local entity to finance improvements brought on by unfunded mandates. Local revenue for streets and bridges is predominantly general fund. The tax base had been steadily decreasing for the last ten years, but it turned around last year.</p>
ISTEA FUNDS	<p>They have seen a little bit of funding. There were several projects that have been funded by the forerunner of ISTEA, the FAUS funds. While this type of funding has not been adequate, it has been fairly consistent. They have been averaging \$500,000 a year.</p>
ROAD/BRIDGE MAINTENANCE RECON/CONST AND ROAD COND	<p>Road conditions are generally pretty good. They have deteriorated over the last ten years, and this will unquestionably continue. The roads will reach a critical period in about 15-20 years. Mr. Bonnett estimates his budget shortfall to be about \$1million/year.</p>
PAVEMENT MANAGEMENT SYSTEM	<p>They do inventory in a block by block basis and then use Rbase 5000 to select the worst streets. It is basically a database management system. It does provide a quantitative assessment of the roads. Mr. Bonnett feels that a computerized PMS is a <b>total and unlitigated waste of money</b>, because those decisions are made in a political environment. He said that <b>in times of short funds, it is always a political decision, never a technical decision.</b></p>
MISC	<p>Mr. Bonnett suggests that one way to improve the situation would be to institute a fuel tax and specifically earmark it for the local sector.</p>

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Wichita Falls  
**OFFICIAL(S)**  
**INTERVIEWED:** George Bonnett, Director of Public Works  
**DATE/TIME:** August 30 ,1993/2:30 p.m.

*What do you perceive to be the general economic climate in Wichita Falls?* Fairly good in terms of the overall economics. It has turned around, as noted by sales tax revenues, within the last year. *Do you expect this trend to continue?* I think it will flatten out. I think we'll hold what we can for the next two to three years.

*What percentage of your funding for roads and bridges is obtained from local, state, and federal sources?* Local is about 85% and state, via federal, is about 15%. *Have you seen any changes in this funding pattern?* Yes, it is going downhill. *What do you think has caused this?* Decreasing ability on the part of the local entity to finance improvements predominantly brought on by unfunded mandates. *Do you expect this to get worse?* Yes.

*What is your main source of local revenue?* For roads and streets, it is predominantly general fund -- ad valorem taxes and sales tax. *Has your method of obtaining local revenues changed over the last ten years?* No.

*Has Wichita Falls experienced a declining tax base?* Up until last year, yes. It has been steadily decreasing for the last ten years, but it did turn around last year. *What caused the decline, and what happened to turn it around?* The decline was caused predominantly by the failure of the oil industry. It has turned around due to the expansion of Sheppard Air Force Base and also the influx, or the anticipated influx of people due to a prison being constructed, and several local industries are in an expansion mode.

*How much of your funding is used for routine maintenance, and how much is used for reconstruction?* About 85% is general maintenance and 15% reconstruction. *How is that determined?* We throw darts once a year (Ha!Ha!). No, it is basically that whatever is available in the general fund is normally thrown toward reconstruction. *What about new construction?* That has been almost entirely ISTEA type state funding projects. *So, you have seen some ISTEA funds?* Yeah, a little bit. We're just starting to see that come up on line, but there have been state projects that have been funded by the forerunner of ISTEA, the FAUS funds. *Has this funding been adequate to meet your needs?* Oh no, but it has been fairly consistent though. We have been averaging probably \$500,000 a year for the last five to ten years.



***Do you use a pavement management system?*** No. Well, that's not true. We use an inventory system where we do inventory in a block by block basis and then use Rbase 5000 to select. It is basically a database management system. We select the worse streets, the most demanding streets that we have. ***Does your inventory system provide a quantitative assessment or rating system?*** Yes, it does. ***Have you considered using a pavement management system?*** Yes. I feel it is a total and absolute unlitigated waste of money. ***Why?*** The problem is that those decisions are made in a political environment. In times of short funds, it is always a political decision, never a technical decision. Consequently, a magnitude of technical data is worthless. It simply is not beneficial. It is helpful, interesting, but not beneficial to the process.

***What is your general impression of road conditions in the city?*** Pretty good, as compared to my experience in the North. ***Have these conditions improved or deteriorated over the last ten years?*** I think deteriorated slightly. And this will unquestionably continue.

***What would you estimate your budget shortfall to be? In other words, how much of what needs to get done actually gets done?*** I would estimate by our projections, particularly on reconstruction, that we are in the neighborhood of a million dollars a year short. That is purely roadways, not drainage. ***Is that going to give you a critical period in a few years when the backlog is going to get.....?*** Yeah, it will. It is probably twenty years out. Maybe fifteen, but it is definitely out there.

***Have you experienced a substantial change in traffic patterns?*** No, it has been very consistent. In fact, if anything, a slight decrease in the last ten years.

***What suggestions do you have to improve the overall situation?*** Well, it would be very helpful, I think ..... obviously we need to generate about a million a year. That would be about 4¢ additional on the property tax. Another way to do that would be to institute a fuel tax and specifically earmark it for the local sector. I think this is the most cost effective way to do it. If you send it to the state and let them send it to you, you're probably going to get about 80¢ to the dollar. If you send it to the feds and let them return it to you via the state, you're probably going to get about 60¢ to the dollar. ***Do you think that this will ever happen?*** Ultimately, yes. There's just no alternative. Ultimately, as the pressure increases, the political reality will set in and that's the only way we can do it. Ultimately, the user will have to pay for it. But I don't think it will happen in my career.

## ABSTRACT

**CITY:** Wichita Falls  
**OFFICIAL(S)**  
**INTERVIEWED:** James P. Berzina, City Manager  
**DATE/TIME:** August 30, 1993/3:30 p.m.

ECONOMIC/ REVENUE	The economic climate is pretty good. They are riding an improvement crest that is a result of the following: (1) Kennedy Air Force Base is expanding, (2) a construction boom is going on, and (3) they are building a maximum security prison. They are also building a multipurpose center (exhibit hall, coliseum, rodeo arena). Mr. Berzina expects the improvement to continue, especially if they make an effort to help it continue. They had experienced a declining tax base for the last several years, until last year. This year it increased.
MISC	A lot of cities have passed an economic development sales tax. Mr. Berzina would like to see legislation that would allow cities to pass an additional ½¢ sales tax for infrastructure redevelopment.

**INTERVIEW DATA FOR TOP 25 CITIES  
BASED ON POPULATION  
PROJECT 1307**

**CITY:** Wichita Falls  
**OFFICIAL(S)**  
**INTERVIEWED:** James P. Berzina, City Manager  
**DATE/TIME:** August 30, 1993/3:30 p.m.

*What do you perceive to be the general economic climate in Wichita Falls?* I think it has gotten pretty good. All you can do is compare where you are to where you were in the past, I guess. We feel pretty strongly that right now we're riding a pretty good crest -- an improvement crest. Three major things have happened here that have caused us to be in sort of a boom situation. Kennedy Air Base is expanding. You know, when they close bases around the country, they are not totally closing bases and packing that up. They are moving a lot of that somewhere else for consolidation. We are the beneficiary of two base closings -one in Illinois and one in Colorado. I get the figures mixed up and sometimes they change, but it appears..... The construction boom going on out there is a quarter of a million dollars. It has already started, and I think they expect \$70 million to \$80 million already. And some of that is non-ending, so to speak, because of the new student loads..... It hasn't really kicked off in earnest yet, but we're also building a maximum security prison here that is going to employ 800 people. It seems with base closing and with this health unit out here being beefed up ..... there are fewer in other places when they close bases, so we are seeing more people retire here so they can get their benefits from the military base. San Antonio has made a career out of getting retired people to stay there with their four or five bases. And this will continue because of things like Fort Worth's base closing. People are moving here and staying here. And then we're doing something ourselves; we're building a multipurpose center here. It's a \$25 million project that will include a coliseum, exhibit halls, and an agricultural center for rodeo event type things. The housing market is tight. Believe it or not some people are actually talking about building apartments. The individual housing -- they're building, they're buying, they're selling. You add some barometers like sales tax and you can see that goods things are going on in that regard. Most of us feel that it has been a long time coming, and it is nice that it is here. *Do you expect it to continue?* I think for a while it can, and then it depends on what we do to make it continue. Sometimes you can feed off of these things. I'm aware of a couple of cities that have quite successfully started something like this and kept it going.

*Has Wichita Falls experienced a declining tax base?* We did for about the last three or four straight years running. The State of Texas, unlike a lot of other states, values its property based on it's income generated. A lot of states it's flat what the building is

worth whether it's empty or filled. Last year, I think we held water, or stayed just about where we were. This year we went up about \$50 million. *Do you think it will continue to go up?* Yeah, I think a lot of it has been driven by the S&L collapse. Cities like here...now obviously, if you get to a place like Austin, a lot of it is purely driven by over building. But we didn't over build so much. A lot of our commercial industry over built, but there really wasn't much.

*Suggested solutions?* A lot of cities have passed an economic development sales tax. I think one of the fairest taxes in the world is the sales tax, regardless of how much money you make, how many lawyers you have, how many accountants. I think you ought to give serious thought to whoever you give these reports to try to carry legislation that would allow cities to pass a ½¢ sales tax. I think the public would be more willing to pass something like that. I'm not talking about taking half of the penny that they already have. I am talking about authorization for another ½¢ sales tax for infrastructure redevelopment.



**APPENDIX G:**  
**EXPLANATION OF**  
**REGRESSION ANALYSIS TECHNIQUE**



## REGRESSION ANALYSIS

Much of the analysis carried out for this report utilized regression analysis procedures. A regression model attempts to explain a certain variable of interest, called the *dependent variable*, in terms of one or more independent variables or *regressors*. If the model includes 1 regressor, then, the model is referred to as a univariate regression. If it contains two or more regressors, then, it is a multivariate or a multiple regression model. The regression model *fits* the regressors to the following equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots \beta_n X_n + \epsilon$$

where  $\beta_0$  is the *intercept* term or the constant and  $\beta_1, \beta_2, \dots, \beta_n$  are the regressor coefficients estimated by the model.  $X_1, X_2, \dots, X_n$  are the independent variables which are input to the model, and  $\epsilon$  is the error term. In effect, what the regression model does is to explain or *predict* dependent variable Y using variables  $X_1, X_2, \dots, X_n$ , which are assigned certain *weights* or coefficients  $\beta_1, \beta_2, \dots, \beta_n$ . The error term  $\epsilon$  accounts for variations not explained by the coefficients and other variables in the model.

The model described above was used in this report to either determine unknown values of a particular variable (used in all the forecasts we obtained) or in examining if a variable or a set of variables (independent variable(s) or quantities) had a bearing on or relationship with another variable (dependent).

Please refer to the "Sample Regression Model Output" on the following page to interpret the results of a multiple regression model. The dependent variable in this model is **Avg\_SR** and the regressors or independent variables are **Dummy87**, **Dummy92**, **Cons\_RM**, and **Main\_RM**. The **Intercept** is the constant referred to above.



## SAMPLE REGRESSION MODEL OUTPUT

Model: MODEL1

Dependent Variable: AVG\_SR

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	702.59405	175.64851	2.239	0.0744
Error	65	5100.08142	78.46279		
C Total	69	5802.67548			

Root MSE	8.85792	R-square	0.1211
Dep Mean	79.14388	Adj R-sq	0.0670
C.V.	11.19218		

### Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob >  T
INTERCEP	1	67.959542	4.36965799	15.553	0.0001
DUMMY87	1	0.770406	2.65559723	0.290	0.7727
DUMMY92	1	3.978722	2.65795430	1.497	0.1393
CONS_RM	1	0.000522	0.00029296	1.783	0.0792
MAIN_RM	1	0.002855	0.00134521	2.123	0.0376

The overall model has an *F value* of 2.239 and a *p-value* ("Prob>F") of .0744. This model is statistically significant or *valid* at a *p-value* of .10, because the model's *p-value* of .0744 is smaller than .10. In practice, regressions with a *p-value* less than .05 or .10 are acceptable, while those with *p-values* less than .01 are considered excellent *fits*. Regression models with a *p-value* larger than .10 are not considered suitable for scientific reporting purposes. An *F value* of greater than 2 is usually statistically valid. Based on these general rules, our overall model is statistically valid at the *p-value* = .10 level.

The *R-square* and *Adjusted R-square* values represent what percentage of the variance in the dependent variables is explained by the regressors. Ideally, the closer the *R-square*, or more importantly, the *Adjusted R-square* values are to 1.0, the better is the quality of predictions based on the regression model. In our model, the *Adjusted R-square* is only .0670 implying that our independent variables explain only 6.7% of the variation in the value of the dependent variable (**Avg\_SR**).

The **Intercept** refers to the constant in our equation ( $\beta$ ). The "Parameter Estimate" column contains the regressor coefficients ( $\beta_1, \beta_2, \dots, \beta_n$  in our equation) for each of the independent variables in column 1. The *T statistic*, seen in the second column from the right, is similar to the *F value* except that it gauges the statistical significance or validity of each independent variable. The "Prob > |T|" column represents the *p-value* of each independent variable. The same general rules that applied for the *F value* and "Prob>F" values are used to interpret these values. In our model, looking at these two values together for each of the regressors, we see that *only* the **Intercept**, **Cons\_RM**, and **Main\_RM** variables are statistically significant or acceptable (**Intercept** valid at *p-value* level of .01, **Cons\_RM** valid at *p-value* level of .10, and **Main\_RM** valid at *p-value* level of .05).

The third column, labeled "Standard Error", contains estimates of the error term for



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- Texas State Comptroller's Office. *Total Gross Sales by City: 1982*.
- Texas State Comptroller's Office. *Total Gross Sales by County: 1982*.

Texas State Comptroller's Office: *Total Gross Sales by City: 1987.*

Texas State Comptroller's Office: *Total Gross Sales by County: 1987.*

Texas State Comptroller's Office: *City/County Sales Tax Allocation Summary: 1972.*

Texas State Comptroller's Office: *City/County Sales Tax Allocation Summary: 1977.*

Texas State Comptroller's Office: *City/County Sales Tax Allocation Summary: 1982.*

Texas State Comptroller's Office: *City/County Sales Tax Allocation Summary: 1987.*