

CITY OF LIBERTY
INFRASTRUCTURE TASK FORCE

July 2009

COMMITTEE REPORT

SECTION 1

INTRODUCTION

Introduction

Charge

Mayor Greg Canuteson asked a group of Liberty citizens to survey the issue of Liberty's infrastructure on his behalf and to prepare a statement or report setting forth some sense of the Community's concerns regarding this subject. The task force would make recommendations in a general sense, but would not suggest specific programs or solutions for his or the City Council's consideration.

Membership and Structure of the Task Force

The individuals asked to participate in the Infrastructure Task Force were as follow:

- Juarenne Hester, chair
- Council Member Jeff Moore
- Kevin Graham
- Kyle Geiger
- Steve Hawkins
- Joey Dugdale
- Randy Eggleston

Steve Hansen, the City's Director of Public Works, served informally as a liaison between the task force and the City staff, attending all the meetings, answering questions, and providing information meaningful to the discussion. Our thanks go to Steve for his attendance and his candor in responding to our questions and efficiency in fulfilling our requests.

Scope: What is Infrastructure?

What constitutes infrastructure could differ from one to another city. The elements of infrastructure provided the outline for how our discussion was organized. For our purpose, infrastructure includes the following elements:

- Streets
- Storm sewerage
- Water supply
- Sanitary sewerage
- Buildings and other physical facilities

Organization of Report

This report begins with an Introduction followed by Section 2, which includes a summary and general recommendations by infrastructure area.. Sections 3 through 7 contain specific data regarding each of the infrastructure needs addressed in the order listed above. Section 8 addresses funding sources for capital improvement projects through 2030.

Regarding Priorities and Recommendations

Infrastructure needs totaling more than \$170 million dollars were identified in our discussions. This total substantially exceeds the existing and allocated revenue resources available to fund all capital needs. Additionally, under current budget forecasts, this amount will continue to escalate. When needs exceed resources, it is inevitable that priority choices will be necessary. The general recommendations included below are ones we consider flow logically from our discussions. Rather than suggest specific priorities, we hope that these recommendations provide the mayor and council a starting basis for the tough specific decisions that will follow over the next months and years.

SECTION 2

SUMMARY AND RECOMMENDATIONS

Streets and Bridges

Streets, including sidewalks, curbs and bridges are potentially the most evident or visible element of infrastructure. The task force observed in reviewing the status of Liberty's street network that, in recent years, there has been a tendency toward expansion of the street network, as opposed to maintenance of existing streets. This has been accompanied by a corresponding decline in the quality of the overall street network that is both perceived and objectively measured. Status of street networks is measured in terms of congestion on existing streets and intersections and in physical condition of those streets. Liberty measures the physical condition of its streets using a PCI or Pavement Condition Index.

The principal topic addressed here is the physical condition of existing street networks. The task force considers this a number one priority in infrastructure improvement. The cost of degradation of streets becomes one measured in citizen inconvenience, potential damage to vehicles, and an overall sense of poor quality of this most evident element of City infrastructure. This poor quality contributes to an image of the City to its citizens, to visitors, to business customers and to potential citizens and customers that is discouraging and which diminishes business volume and property values.

The estimated cost of identified needs is \$64 million.

The task force makes the following recommendations:

- Renew an emphasis on allocating capital dollars on repair and maintenance of existing streets.
- Adopt a goal, over a ten year period, of increasing the average PCI in Liberty to 80 from its present 56. (See Section 3 on Streets and Bridges for explanation of PCI ratings).
- Place priority upon lowest level of maintenance (surface sealing or crack sealing). An increase in funding for maintenance at this level maximizes importance for the future and postpones more intensive degradation from occurring.
- Renew the neighborhood improvement projects, as such projects offer many advantages:
 - This comprehensive approach addresses all elements of infrastructure in one project (streets, curbs, sidewalks, storm sewers, water supply and sanitary sewers.) This avoids disturbing one element of infrastructure in order to deal with another.
 - Impact is long lasting. Results of these projects are evident today, 30 years after they were accomplished.
 - Property values are improved.
 - Such projects are winners from a public relations standpoint.

Sanitary Sewers

One of the major factors causing problems in the area of sanitary sewers is the age of the system, though problems are being experienced in newer areas also. Lack of maintenance in this system poses several problems. Cost of maintenance increases exponentially when delayed. Another additional cost incurred by city is increased treatment fees paid to Kansas City due to inflow/infiltration. Citizens are affected by increased water rates and in many instances by unreimbursed expenses related to sewer back-ups. Areas of town and specific maintenance needs have been identified for repair when funds are available.

The estimated cost to upgrade the system is \$20-30 million.

The task force makes the following recommendations:

- Focus improvement in areas where inflow/infiltration rates are highest.
- Seek all available grants from any funding agencies.

Storm Drainage

Liberty's location and soil type compound storm drainage problems for the City. Of 200 projects identified by Burns and McDonnell in 2001 only 10 of the priority projects have been completed. All completed projects have proved successful in addressing the targeted problem. Currently no funding is in place to continue addressing this problem.

The estimated cost for all projects \$30 million.

The task force makes the following recommendation:

- The City should continue to develop a plan for a storm water financing strategy begun in 2003.

Water System

One-half of the City's water distribution system has been installed in the last 50 years using modern materials. One half of the remaining system is in serious need of repair or replacement, many pipes in older areas being over 100 years old. System deterioration leads to costly water main breaks. 23% of the water produced by the City is unaccounted for. This non-revenue water both reduces revenue and requires increased cost to produce. No comprehensive study has been done city-wide and would be very difficult to do. Therefore, specific water system needs are hard to identify.

A conservative estimate to upgrade water system is \$20 million.

The task force makes these recommendations:

- Conduct a water loss study to determine the basic causes of the problem (bad billing, bad meters, illicit connections, leaks, etc.) and take corrective action wherever possible.
- Improve the soundness of the Water Enterprise Fund to allow more capital expenditures from that source.

Building and Facility Needs

The need for new City facilities has been discussed since 2003 and preliminary dollar figures determined. In view of the great need of capital dollars for infrastructure improvements any movement on this is probably not a priority item even though these facilities are overcrowded and inadequate. A study is underway to determine how the City and County might work together to meet the space needs of both entities. That study will not be complete until early 2010.

A recent (2003) estimate of the cost to address building and facility needs was \$26 million.

The task force makes this recommendation:

- The City should support the effort to find ways to cooperate with the County to fill the space needs of each entity.

Enterprise Funds

The Enterprise Funds are separate from the regular city budget and strive to be self-sufficient to support the Water and Sewer Funds. Currently, the Enterprise Funds do not carry a sufficient balance to address capital needs in the sewer and water funds and struggle to meet the annual bond covenants. Therefore these funds are in precarious financial positions. Increases in income to these funds come through increase in rates for consumer and hook-up fees for developers. A rate study has been commissioned with Burns and McDonnell and is expected to offer additional guidance regarding these Funds.

The task force makes the following recommendations:

- Reestablish the financial soundness of these funds.
- Analyze the usages and practices of the Funds to determine that they are being utilized efficiently and to determine if current usages and practices conform with the purpose of the Funds.
- Raise rates and hook-up fees judiciously to restore financial soundness to the funds.

SECTION 3

STREETS AND BRIDGES

I. Current state of Liberty's streets and bridges

General

Liberty currently has 161.33 centerline miles of roadway

Liberty currently has 295.57 lane miles of roadway

Overall Condition Index (OCI)

The OCI is a numerical index that attempts to objectively evaluate the condition of a road. The index uses a scale from 0 (worst) to 100 (best). Generally speaking, a score from 50-100 indicates a road in usable condition which requires, depending on the specific condition of the road, various degrees of ongoing maintenance. An OCI score between 26 and 50 is indicative of a road needing overlay or repavement. A score or 25 or below is indicative of a road which needs major reconstruction.

The current OCI for all of the City's roads is 56. This number has been slowly and steadily declining for the last several years. Five years ago, in 2004, the OCI was 60. The City street department has determined that a reasonable and attainable target OCI is 70.

A more detailed analysis of the City's road system, as measured by the OCI scale, is set forth below:

OCI	Number of Lanes	Number of Centerline Miles	Number of Lane Miles	% of Centerline Miles	% of Lane Miles
0-20	2	18.75	37.50	11.6%	12.7%
0-20	4	0.18	0.72	0.1%	0.2%
21-40	1	0.14	0.14	0.1%	0.0%
21-40	2	31.68	63.36	19.6%	21.4%
21-40	3	0.05	0.15	0.0%	0.1%
21-40	4	0.25	1.00	0.2%	0.3%
41-60	2	27.33	54.66	16.9%	18.5%
41-60	3	0.60	1.80	0.4%	0.6%
61-80	2	35.33	70.66	21.9%	23.9%
61-80	3	0.38	1.14	0.2%	0.4%
81-100	1	0.16	0.16	0.1%	0.1%
81-100	2	29.65	59.30	18.4%	20.1%
81-100	3	0.66	1.98	0.4%	0.7%
81-100	4	0.75	3.00	0.5%	1.0%
Not rated		15.42		9.6%	0.0%
TOTAL		161.33	295.57	100%	100%

	Centerline Miles	Lane Miles
0-20	11.7%	12.9%
21-40	19.9%	21.8%
41-60	17.3%	19.1%
61-80	22.1%	24.3%
81-100	19.4%	21.9%
Unrated	9.6%	0.0%

Life cycle and preferred maintenance program

40 years is a desired lifespan for a road. In practice the City has often been unable to realize this desired lifespan

Preferred maintenance program

- Annually - minor repairs and crack sealing
- Year 5-15 - surface treatment (i.e. slurry seal, micropave)
- Year 15-25 - surface treatment
- Year 25-40 - Roadway reconstruction

Costs and other factors which affect the City's road program

- Costs (2009 dollars)
- Overlay - \$200,000 per mile
- Slurry seal - \$25,000 per mile
- Micropave - \$35,000 per mile
- The City's street department estimates that an average annual expenditure for each lane mile is \$7,000

Other factors which affect the City's roads and its road program

- Age
- Type of construction (i.e. concrete, asphalt, etc.)
- Standards
- Soil and sub-grade conditions
- Weather
- Maintenance programs and staffing
- Deferred maintenance
- Material costs

Scope of the problem

The City of Liberty currently has approximately 40% of its roads rated with an OCI of under 50. This translates to approximately 120-130 centerline miles of roads which are in need of either resurfacing or reconstruction. The state of the City's roads is an issue which is fast becoming unavoidable and, given the costs of repairing and maintaining roads, is a concern which deserves the careful and immediate attention of the City Council.

Potential costs

Estimated cost to update problem streets - \$64 million

Overlay - \$16 million

Reconstruction - \$48 million

Annual cost to maintain roads (once they have been improved) at 70 OCI - \$1.1 million

Comparison with Other Cities

Objective: Assess how Liberty stacks up with other cities in relations to quality of road conditions.

Research

Lenexa, KS

Population is 45,681 as of July 2007

PCI-81 to 82

Lane Miles-600

Capital Improvement- \$3.1 Million this year due to economy. Normally \$3.5 Million.

Additional Information- Lenexa tries to inspect 1/3rd of their streets every three year to keep up on possible issues. The city has a 3/8th quarter tax where 3/4th of that revenue goes to repair. It generates about \$1.5 Million per year to bring a total of \$3.5 Million to the capital improvement budget. Lenexa does most of their work “in house” which reduces some of the cost associated with bidding it out. Curb repair, sidewalks, and some sealing are still bided out but the main maintenance is done “in house.” Lenexa has similar issues as Liberty with new roads losing quality too quickly. The city previously compacted the dirt to 95% compression and built the roads but currently the city is looking into using Fly Ash to reduce future road damage.

Blue Springs, MO

Population is 55,031 as of July 2007

PCI-Does not Index Roads

Lane Miles- 500

Capital Improvement- Increased from \$1 Million to \$2.5 Million in 2009

Additional Information- Blue Springs is pretty much doing the same thing Liberty is doing which is repairing roads that can be maintained at a high level and leaving other roads untreated. Three years ago Blue Springs tried to pass a tax for more road improvements but it failed. The city does not have a 6 year plan for road improvement. Last year 25 miles were overlaid and have planned 18 miles this year. The city had to lay off 3 people so far this year which the employees had over 15-20 years of experience. Currently Blue Springs has the

lowest property and sales tax in the Metro area which leads to operating at less than 50-60% of other cities.

Lee's Summit

Population is 82,820 as of July 2007

PCI- Mid to lower 80's

Lane Miles-1,019

Capital Improvement-\$3 Million

Additional Information- Lee's Summit has a program that gives a road 100 points starting out and then reduces the points based upon 13 Criteria's. The city's 2007-2008 PCI study was 89 but the current program does not account for length of a road. Lee's Summit is planning on getting micro paver software installed soon which will give the city a better idea of the road problems. Finally, due to the expansion and contraction of Missouri clay, Lee's Summit has gone to adding lime or fly ash to reduce future shifting problems.

Independence, MO

Population is 110,704 as of July 2007

PCI-70

Lane Miles-1,156

Additional Information- Independence just passed a 10 year tax to overlay every street by 2019. The city currently has a private contractor to inspect 1/3rd of the streets every year.

SECTION 4

SANITARY SEWERS

SANITARY SEWER INFRASTRUCTURE ASSESSMENT

BACKGROUND

General

- 3900 sewer manholes-1300 require rehabilitation
- 164 miles of sewer main-85 miles require rehabilitation
- Expected infiltration 50% - In some areas in Liberty rates are significantly higher, up to 1800%

Factors affecting sewer system condition

- Age
- Materials used for construction
- Illicit connections
- Defects in pipes and structures
- Root intrusion and grease deposition
- Lack of adequate maintenance

IMPACT OF SYSTEM DETERIORATION

- Increased inflow/infiltration of water into the system
- Decreased system capacity
- Backups into homes and businesses
- Damage claims
- Increased cost of treatment
- Increased rates to customers

MAINTENANCE NEEDS

- Pipes washed
- Root and grease removal
- Rehabilitation of mains and structures
- Replacement of mains and structures
- Mitigation of illicit connections

COSTS OF REHABILITATION AND MAINTENANCE

Spending money to reduce inflow/infiltration reduces payment to Kansas City for processing. One study at 2 locations on Shoal Creek in 2002 showed that reduction in peak flow by 25% would reduce payment to Kansas City by \$45,000.

This could be multiplied if all areas of town were taken into consideration.

Areas of town have already been identified with maintenance needs and associated costs determined.

Total cost to upgrade system is approximately \$20-30 million.
The expenditure of \$10 million could bring a good return.
A grant from DNR for \$1.5 million is available, requiring a \$1.5 local match.

SECTION 5
STORM DRAINAGE

Storm Drainage System Needs

Problems of storm drainage in Liberty are compounded by:

- Inadequately sized or non-existent storm drainage systems in older parts of town
- Very erodible soil
- Springs and underground streams
- Larger drainage ways are often located across private property—with no city easements or right of way
- Systems with older, outmoded storm drainage return

Scope of Problem

- In 2001 Burns and McDonnell conducted a comprehensive study of entire storm water system, inventorying system components, identifying system deficiencies and recommending priority projects to bring Storm Drainage System up to an acceptable level of protection.
- Over 200 projects were identified
- Estimated cost \$24 million in 2003 dollars

Response to the problem

- 10 of the recommended, high priority projects have been completed at a cost of \$2 million using 2010 Capital Funds (\$500,000) supplemented by the now defunct state storm water funding program.
- All projects completed have proven successful in addressing the targeted problems.

Present Funding

- Currently no funding source is in place to make significant progress on what is now estimated to be a \$30 million plus issue.
- **NO money from the 2030 Capital Improvement Sales Tax is budgeted toward Storm Drainage Systems.**
- Liberty For All Committee and staff have recommended that adequate funding levels need to be directed to this issue. A storm water financing strategy development begun in 2003 has been put on hold due to capital budgeting changes.

SECTION 6
WATER SYSTEM

Water System Improvements

Background Information

- City has approximately 170 miles of water distribution pipe.
- One half of city water distribution system has been installed in last 50 years with modern material.
- One half of the remaining are in serious need of repair or replacement.
- In older areas of the city mains have been in use for over 100 years, are old, undersized, and provide inadequate service.
- Other components of the water distribution system, which require periodic and costly maintenance include:

Wells	Valves
Pumps	Hydrants
Treatment facilities	Storage tanks
	Towers

Impact of System deterioration

- Water main breaks
 - Disruption of service to homes and businesses
 - Loss of business revenue
 - Loss of water
 - Decreased fire protection capability
- Leakage problems – 23% of water produced is non-revenue water. This water is lost to non-metered uses, “stolen” water, improperly metered water, pipe leaks and not being recorded properly through the accounting system. Typically a water producer would expect the loss to be somewhere between 10 to 15%. Results:
 - Lost revenue.
 - Requires increased cost to treat more water than what is actually required.

Costs of maintenance and repair

- Water system improvements are mainly funded from water enterprise fund.
- Some improvements may be considered out of capital funds.
- No comprehensive study or inventorying has been done with the water system making improvement needed city wide hard to identify.

- A leakage study would be advisable to develop a plan to eliminate this waste.
- A conservative estimate of cost to completely upgrade the water system would be \$20 million.
- No funds are identified in the long-range planning document from now until 2030.

SECTION 7

BUILDING AND FACILITY NEEDS

Building and Facility Needs

In considering capital improvements for the city during the 2030 time frame city buildings and facilities should be considered. The 2003 budget discussions included the need for the following facilities and estimates were provided in 2003 dollars:

New city hall or renovation of current facility	\$7.1 million
New police/ courts facility	\$10.2 million
New operations center for public works/parks maintenance	\$7.5 million
New animal shelter	\$1.2 million

\$26 million

These facilities are already overcrowded and inadequate and, in the case of the animal shelter are unable to meet standards.

Currently the City and County are working on a joint facilities study that will look at options for providing required space to add circuit courts. This study is anticipated to be complete in early 2010.

SECTION 8

**INFRASTRUCTURE FUNDING
SOURCES**

2010-2030

INRASTRUCTURE FUNDING SOURCES 2011-2030

Beginning in the year 2011, 100% of capital improvements are scheduled to be funded through 3 primary sources:

***Special Use Taxes (Transportation & Capital)**

***County Road District Funds**

***Road Use Tax**

These funding sources are slated to cover ***all*** road repairs, the road overlay program, KCATA bus service, remaining bond obligations for South Liberty Parkway Phase 1, Construction of South Liberty Parkway Phase 2, Public Works equipment, and other pay as you go type projects.

External downward pressures continue to reduce the aggregate amount of money available for infrastructure improvements over the next 20 years. The original projections (created for the 2009 sales tax election) showed a total \$102.8 million dollars in revenue over 20 years. Revised projections show this number at approximately \$84.2 million. Please see Appendix A, revenue forecasts for 2007-2030.

The following variables must be mentioned:

1. 2010 Sales tax revenues have declined approximately 10% in 2009. *The projected \$84.2 million assumes full recovery of sales tax revenues to 2008 levels within 2 years and a 1.5% annual growth rate in sales tax collections over 20 years.
2. Clay County has reduced the road levy from .24 to .08 in 2009. *Ongoing negotiations with the county continue for a long term settlement of this dispute. The enclosed projections consider a Road levy equivalent to .16 beginning in 2011 and beyond. Any degradation of Road District Funds could further reduce the infrastructure funding source.
3. Road Use Tax calculations are completely dependent upon growth. It is very difficult to predict or project what these are going to be.

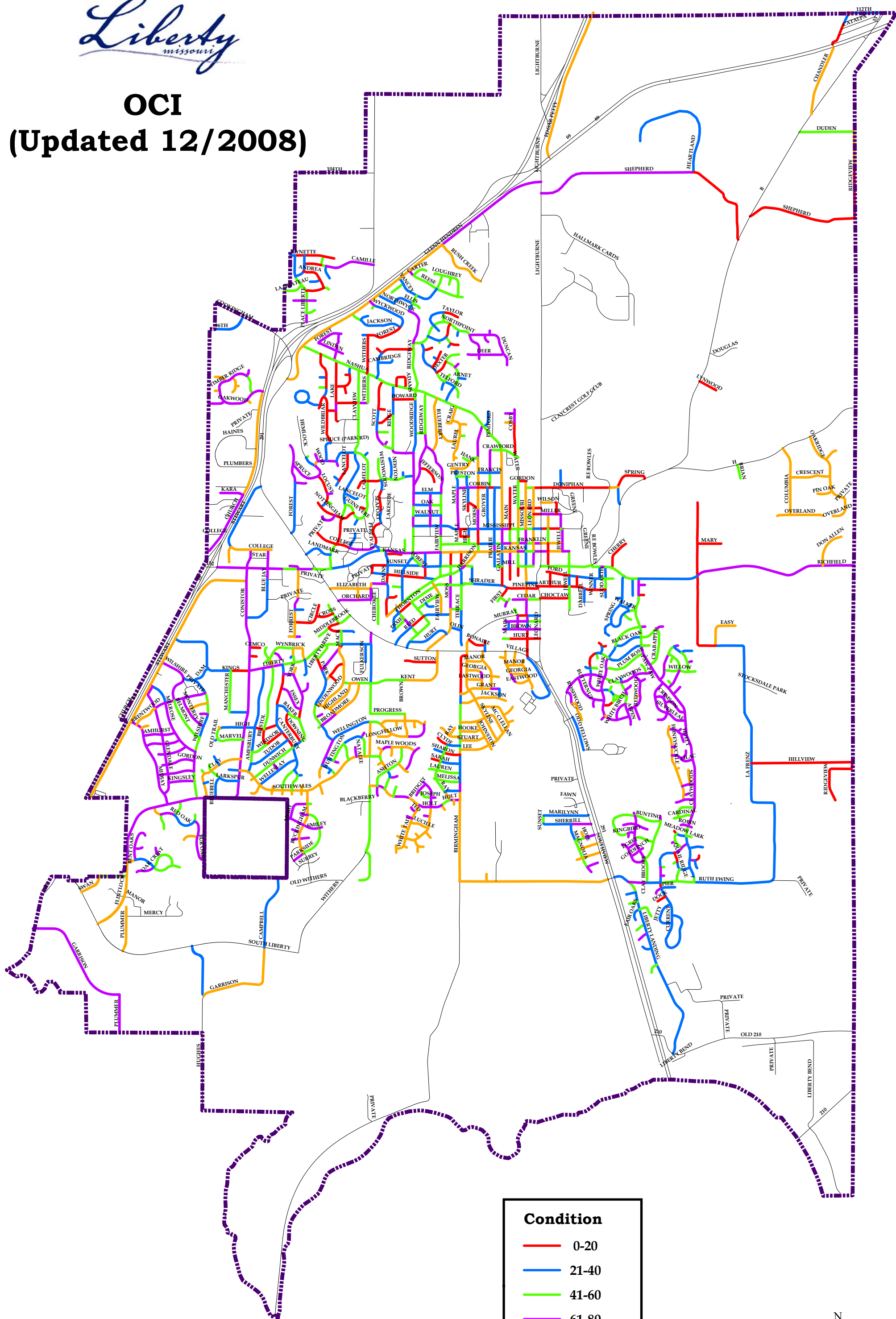
APPENDIX A

REVENUE FORECAST 2007-2030

APPENDIX B

CITY OF LIBERTY OCI
STREET MAP

OCI (Updated 12/2008)



Condition	
—	0-20
—	21-40
—	41-60
—	61-80
—	81-100

