

Mayor's Task Force on Infrastructure (MTFI)

Final Report

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Acknowledgements

The MTFI would like to thank the City of Columbia council for the opportunity to provide input into policy issues related to infrastructure, a vital community resource. We also thank our many committed, attentive fellow citizens and invited guests who provided us with formal and informal input to guide both our process and recommendations as well as local media who have paid substantive attention to the work of the MTFI and other citizen boards and commissions. We particularly thank city staff in the Water and Light, Community Development, Finance, Law, and Public Works departments who have given us many, many hours of their time – mostly after 5 p.m. We want to give special thanks to administrative staff who provided excellent and gracious support in managing our scheduling and documentation.

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Summary of Recommendations

The MTFI recommendations represent a consensus of ideas from MTFI members. Rather than vote by majority to include or exclude recommendations by individual MTFI members, this document reflects development of recommendations that are agreed-upon potential actions and policies the city council and/or staff may choose to adopt. Because the MTFI adopted a consensus process, recommendations represent a range of perspectives and priorities. The MTFI trusts council and staff to weigh opportunities and mitigate contradictions that might arise between options provided within these recommendations.

Storm Water Utility

Functional Recommendations

- a. Expand geographic information system (GIS)/mapping capacity. The city should expand its internal and cooperative mapping capacity with the University of Missouri (MU) and Boone County, cataloguing equipment information, engaging water runoff tools, and continued use of Light Detection and Ranging (LIDAR).
- b. The city should coordinate with MU and Boone County to install an automated rain gauge system to better track precipitation within the MS4 permit area.
- c. The city should model the public storm water system hydraulics to identify system deficiencies to assess future impacts of development and troubleshoot existing capacity.
- d. The city should adopt an objective grading system to prioritize storm water capital improvement projects ensure a consistent and objective evaluation process for selecting projects.

Financial/Policy Recommendations

- a. The city should initiate the process of transitioning the residential storm water rate structure to be based on total impervious area of a property for a fairer means of collecting funds.
- b. The city should ensure storm water rates are consistently applied, billed, and collected.
- c. The city should consider implementing a system to collect storm water fees on quarterly, biannual, or annual basis as appropriate for properties.
- d. The city should consider use of special obligation bonds to accelerate financing of deferred capital repairs and improvements.
- e. The city should collaborate with interested parties to lobby the Missouri General Assembly to enact a 'Storm Water Revenue Bond Statute' for municipalities.
- f. The city should explore its authority to combine the storm water and sewer utilities into a single utility.
- g. The city should conduct a storm water cost of service study at least every 5 years.
- h. The city should help promote where appropriate Neighborhood Improvement Districts as a tool to finance storm water improvements.

Streets and Sidewalks

Functional Recommendations

- a. The city should continue to work with the Missouri Department of Transportation (MODOT) and Boone County to plan for collector and arterial roads within the urban service area.

- b. The city should adopt ordinance language which allows property owners/ neighborhoods to coordinate and perform their own street snow removal.

Financial/Policy Recommendations

- a. The city should consider using single issue ballot items as dedicated funding sources for “major” transportation infrastructure projects, e.g., I-70/63 interchange.
- b. The city should extend ¼ cent capital improvements sales tax upon expiration in 2025.
- c. The city should support state efforts to collect sales tax from currently lost from internet sales
- d. The city should support state fuel tax with a local cost share component.
- e. The city should support state pilot projects of mileage-based fees as an alternative to the fuel tax as alternative fuel vehicles become more common.
- f. The city should consider methodology for quantifying the impact of development on existing street maintenance conditions.
- g. The city council should further review development fees by forming an advisory group to review fees on an ongoing basis in the context of use of a consistent traffic study protocol and methodology.

Sewer Utility

Functional Recommendations

- a. The city should create a comprehensive wastewater collection system model, including physical and hydraulic attributes to better analyze changes to the system.
- b. The city should define a residential sewer user as “the owner or occupant of a dwelling unit that is connected directly or indirectly to the city’s sanitary sewer system”.
- c. The city should rehabilitate or replace a minimum of one percent of the sewer collection system annually.
- d. The city should pursue programs that place greater responsibility on property owners to identify and eliminate private sources of inflow and infiltration.
- e. The city should assume responsibility for all connection points within the public sewer as well as responsibility for any portion of a private sewer service lateral located within a public right-of-way or within a dedicated sewer easement.
- f. The city should continue investigating and rehabilitating the sewers in the “I&I Pilot Study Area”.
- g. The city should implement a sanitary sewer backflow prevention program that would provide financial assistance to qualifying property owners.

Financial/Policy Recommendations

- a. The city should engage an independent consultant to consider issues related to metering, connection fees, and definitions of customer classes.
- b. The city should engage an independent consultant to consider policy and agreements between the city and the Boone County Regional Sewer District.
- c. The city should engage an independent consultant to review policy regarding customer charges outside city limits and annexation requirements.
- d. The city should review and adjust sewer charges, fees, and customer classifications at a regular interval.
- e. The city should allow properties to connect to city sewer system, without annexing in some public health and regulatory compliance situations.

Electric Utility Downtown

Functional Recommendations

- a. The city should move forward with building the Mill Creek Electrical Substation to increase electric service capacity in downtown region. If the current 2MW spare capacity is consumed prior to substation completion, the city should consider 'administrative delay' for construction.
- b. The city should consider policy options to adequately fund the connection cost of new and increased service for electric customers which does not overly burden existing rate payers.

Financial/Policy Recommendations

- a. Explore demand rate billing for residential class customers and investigate phasing in meters that use advanced metering technology
- b. Re-evaluate the net zero policy for renewable energy sources.
- c. Evaluate equity of base charges for master metered versus individually metered properties.

General/Global Issues

Functional Recommendations

- a. The city should encourage 'value added' annexation and development.
- b. The city should engage independent consultants to develop a system to inventory and assess sufficiency of infrastructure resources by areas and sub-areas.
- c. The city should develop and codify data standards and require applicants to provide such data to verify the adequacy of city infrastructure prior to approving a building permit.
- d. The city should develop a scorecard system for new development and annexation proposals.
- e. The city should continue to develop the GIS system and encourage participation and coordination with the Boone County Regional Sewer District (BCRSD), University of Missouri, Water Districts, Ameren, and Boone Electric Cooperative, among other utilities.
- f. The city should continue to comply with environmental regulations, including Integrated Management Plan (IMP), and enforce existing/adopt appropriate construction regulations to prevent/mitigate detrimental environmental impact caused by public and private construction projects.
- g. The city should establish an advisory board(s) structure to provide consistent, integrated and ongoing public input, advice and oversight of city utilities and related services for water, electric, sewer, storm water, and streets/sidewalks.

Financial/Policy Recommendations

- a. The city should explore use of similar customer classifications across city utilities.
- b. The city should separately track each utilities base and usage charges as well as connection fees for each customer classification for each utility.
- c. The city should commission a third party, such as a bond review commission or external auditor, to review the city's current methods of accounting for utility depreciation to determine if the city is in compliance with the requirements of the city charter and city code of ordinances.

Mayor Task Force on Infrastructure (MTFI) Work Process

Meetings and Workflow

The MTFI, commissioned in August, 2015, convened a total of 33 times between September 19, 2015 and November 30, 2016. Agendas, minutes, and video/voice recordings of all MTFI meetings as well as work product are available via the city's website and Google docs.

The general work flow for the MTFI involved presentation by appropriate city staff, discussion of MTFI members, and comments from the public. MTFI members agreed to draft recommendations and conduct background research and documentation to present to the body for discussion and refinement. After working through this review process, it became apparent that in addition to developing recommendations specific to each area of infrastructure MTFI was tasked to address, it would be useful to also provide some general/global recommendations that might apply to all city utility/infrastructure enterprises.

The MTFI recommendations represent a consensus of ideas from MTFI members. Rather than vote by majority to include or exclude recommendations by individual MTFI members, this document reflects development of recommendations that are agreed-upon potential actions and policies the city council and/or staff may choose to adopt. Because the MTFI adopted a consensus process, recommendations represent a range of perspectives and priorities. The MTFI trusts council and staff to weigh opportunities and mitigate contradictions that might arise between options provided within these recommendations.

Reports and Literature Reviewed

The MTFI engaged in an intensive discovery and learning process in order to provide recommendations both informed and substantive. MTFI members, city staff, and members of the public provided input into information to review.

Storm Water – (<https://sites.google.com/a/gocolumbiamo.com/mayor-s-task-force-on-infrastructure/supporting-documentation/storm-water>)

- City of Columbia Storm Water Plan Phases 1 & 2, 1996 & 1998
- Chapter 12A Ordinances
- City of Columbia Storm Water Information website
- City of Columbia Storm Water Business Plan Development, 2011
- FEMA Flood Insurance Study
- Integrated Management Plan for Sewer & Storm Water Utilities I & II
- Storm Water Management and Water Quality Design Manual
- Storm Water Utility Rate Study September 23, 2014
- Storm Water Management Plan, Black & Veatch, 1983

Additionally, at MTFI request, city staff provided the following reports –

- Monthly storm water charges for 10 largest properties
- Responses to storm water infrastructure questions from MTFI

Streets and Sidewalks – (<https://sites.google.com/a/gocolumbiamo.com/mayor-s-task-force-on-infrastructure/supporting-documentation/transportation>)

- Transportation Finance Advisory Committee Presentation, 2005
- Recommendations to City Council Transportation Finance Advisory Committee
- Minority Report for Transportation Financing
- Impact of Internet Sales on TST and CIST
- Responses to storm water infrastructure questions from MTFI
- Boone County Northeast Area Transportation Plan

Additionally, at MTFI request, city staff provided the following reports –

- Responses to streets and sidewalks questions from MTFI

Sewer – (<https://sites.google.com/a/gocolumbiamo.com/mayor-s-task-force-on-infrastructure/supporting-documentation/sewer>)

- Wastewater System Improvements, Addendums 1 & 2
- Columbia, MO - Sanitary Sewer Utility Rate Study Final Report - 09.22.14
- Integrated Management Plan for Sewer & Storm Water Utilities I & II
- Report 95-14 Sanitary sewer backflow prevention device program
- Report 94-15 Property Owners being required to identify illegal connections
- Chapter 22 Ordinances

Additionally, at MTFI request, city staff provided the following reports –

- Master Meters Staff Memo 1 19 16
- Master Meters Staff Memo Response 1 24 16
- Comments on Sewer Draft Narrative 10 25 16

Downtown Electric – (<https://sites.google.com/a/gocolumbiamo.com/mayor-s-task-force-on-infrastructure/supporting-documentation/downtown-electric>)

- Downtown electric projects
- FY16-May Financial Statement W&L.
- City of Columbia Transmission Line Project Recommendations, August 2016
- Health Considerations as Columbia MO Pursues New Transmission Lines
- Submetering of Bldg Energy and Water Usage
- Chapter 19 Ordinances

Additionally, at MTFI request, city staff provided the following reports –

- Master Meters Staff Memo 1 19 16
- Comments regarding Mill Creek Substation

Global/General – (<https://sites.google.com/a/gocolumbiamo.com/mayor-s-task-force-on-infrastructure/supporting-documentation/miscellaneous>)

- DLC Infrastructure Report to City Council October, 2014
- Infrastructure Task Force Final Report REP115-11
- Instructions for Accessing Boards and Commission Info

Additionally, at MTFI request, city staff provided the following reports –

- Sunshine Law Memo
- Financial Statements Memo

Presentations and Speakers (<https://sites.google.com/a/gocolumbiamo.com/mayors-task-force-on-infrastructure/staff-presentations>)

Presenter	Date	Topic
Erin Keys	9/29/15	Storm Water Utility
Dave Nichols	10/21/15	Transportation
Dave Nichols	1/12/16	Streets & Sidewalks
Ian Thomas/Karl Skala/Ben Londeree	2/10/16	Perspectives on Fees & Development Process
Randy Coil/Tim Crockett	4/13/16	Perspectives on Fees & Development Process
Dave Sorrell	6/15/16	Sanitary Sewer Utility
Tom Ratermann	6/29/16	Boone County Regional Sewer District
Ryan Williams	7/2/16	Downtown Electric Utility
Tim Teddy	8/17/16	Project Initiation/Planning & Development
Jim Windsor	8/30/16	Utility Billing Policies & Practices
Nancy Thompson	10/28/15	Sunshine Law
Mike Matthes	9/14/15	Introduction and Change
Bob McDavid	9/14/15	Introduction and Change

Public Comment and Input

The MTFI encouraged and gathered public input throughout its process and recommendations via public comment at scheduled meetings and work sessions as well via written input provided by some members of the public. Additionally, the MTFI conducted a public hearing to garner input on a near-final draft of recommendations prior to finalizing and issuance of this final report.

Recommendations

Recommendations are included for the city's storm water utility, streets and sidewalks, the sewer utility, and for electric utility in regard to downtown. For each enterprise considered, an overview of the history, functions, and relevant policy analysis as appropriate is considered. MTFI recommendations for each enterprise and general/global recommendations are organized into two broad categories – functional and financial/policy recommendations. Functional recommendations address operational, service, and staffing/professional development issues, while the financial/policy recommendations focus on issues of cost, financing, billing and charges policies, and policies related to council's role in defining and articulating the city's legal position and response to these infrastructure areas in collaborating with neighboring/overlapping political subdivisions as well as with state and federal compliance issues.

Storm Water Utility – OVERVIEW

Recommendations to the City Council regarding the Storm Water Utility are based on the Task Forces' understanding of the current conditions of the overall storm water system gained through the gathering of information attained from presentations by city staff, specific requests for information of city staff and discussions within the Task Forces' meetings with city staff, interested parties, and citizens of Columbia. With the support of city staff, the task force has made the following findings on the current condition of the City of Columbia storm water system.

The stated objective of the storm water utility which is included in the FY16 budget is to assure the movement of emergency vehicles during storm runoff events, protect the public from rapidly flowing storm water runoff or flash floods, minimize losses and property damage resulting from uncontrolled storm water runoff, and establish requirements for construction of storm water management facilities in newly developed areas. While flooding and erosion are natural processes, with increased development and installation of impervious surfaces there is a corresponding increase in damage to roads, structures and natural drainage channels that can require increased maintenance, and be costly to fix once they have failed, or lose the ability to function properly. Pollution such as oils, litter, domestic waste, and tree related debris (i.e. leaves, branches) contribute to flooding and damage to the environment that is expensive and difficult to counter once damage has occurred.

Provided to the Task Force were details on the considerable number of inlets, structures, pipes, storm water detention and water quality facilities the city is responsible for maintaining and replacing as necessary. Further it was found that the typical design life span for drainage structure systems is 30 years for corrugated metal pipe (CMP) and 80 years for reinforced concrete pipe (RCP). The lifespan of high density polyethylene (HDPE) pipe, which is now being installed is uncertain, but is expected to be equal to RCP. At the current rate of inlet and junction structure replacement it will take 390 years to service, or replace existing structures, and approximately 600 years to service or replace existing pipes. This obvious shortfall in the city's ability to service or replace existing structures and pipes will be felt more drastically as time passes unless substantial steps are taken to

address the lack of financial resources available to the city.

It was found that the University of Missouri and the Missouri Department of Transportation (MoDOT) have storm water systems within the City of Columbia which the city is not responsible for maintaining. The University of Missouri currently is attributed a 60% discount in storm water utility fees subject to the conditions of a special agreement between the City of Columbia and the Curators of the University of Missouri (Resolution 154-96). MoDOT maintained streets are exempt from storm water utility charges by section 12A-150 of the Storm water ordinance which states that the storm water charge shall not be imposed on the occupants or owners of streets or railroad rights-of-way.

Current storm water regulations in Columbia are authorized by a comprehensive storm water ordinance and manual that was adopted in September 2007, revised in 2009, and again revised in 2012. Current city regulations in general require proposed developments to treat the storm water runoff from their site to a certain water quality level, as well as detain the amount of storm water volume from their site to the predevelopment conditions.

It was found a multitude of storm water studies have been completed identifying various storm water needs, yet the community has been slow to adopt recommended changes, projects, and ideas from these studies.

Concerning funding for the Storm Water Utility - In 2015 Columbia voters approved the first storm water rate increase since the storm water utility was established in 1993.

At the present time the city has a four tiered rate structure for residential property that is based on charging each residential property based on the approximate main floor area of each dwelling unit located at the property (Tier 1, less than 750 sq. ft., Tier 2, 750 sq. ft. to 1250 sq. ft., Tier 3, 1251 sq. ft. to 2000 sq. ft., Tier 4, more than 2000 sq. ft.). The maximum residential property currently pays \$1.69 per month which will raise to a maximum of \$3.96 by 2020. There is fifth tier for non-residential developed property that is based on impervious surface.

The current annual (FY16) storm water budget of \$1.84M allocates 21% of the budget to administrative/education/engineering, 27% to capital projects, and 52% to field operations, maintenance and inspections. FY 16 revenue is estimated to be 1.64M. The FY20 budget is projected to be \$3.48M.

No General Fund revenue sources are currently appropriated to the storm water utility. Currently there are approximately \$24 million in projects on the Capital Improvement Project (CIP) list, plus an additional \$16 million in projects identified by staff but not included in the CIP. All the projects within the current CIP list identified by staff were evaluated and assessed as having an "immediate" need.

Staff identified funding as the primary challenge for the Storm Water Utility to keep pace with failing infrastructure, maintenance, improvement projects, and regulatory compliance.

The CIP funding gap in 2021 will be \$1million and by 2030 it will be \$10 million.

Currently the city has 8.41 Equivalent Full Time Employees (FTE) in the storm water utility. These employees include 1 Public Outreach Educator and 7 field operation workers. The storm water utility does not have a formal advisory process or board.

Storm Water Utility – FUNCTIONAL RECOMMENDATIONS

- A. It is recommended the storm water utility continue to research and employ cost effective technologies to assist in the management of the city's storm water infrastructure system. Based on the MTFI 's understanding, suggestions for further evaluation and possible implementation include:
 - a. To provide better management of system assets; expand the utilization of the utility's GIS database with detailed equipment information (type, size, age, drawings, condition, photos, etc.)
 - b. To help analyze the impact of new development and controls related to the MS4 permit, the utility should explore the possible use of the water runoff tools within the Esri GIS program.
 - c. To help refine detailed mapping with interconnecting entities, the utility should continue to coordinate a GIS shared data and mapping meeting with representatives from Boone County and the University of Missouri on a regular basis, at least twice per year.
 - d. To help refine topographical and impervious structure data, the utility should continue to use light detection and ranging methods during the periodic coordinated flyover mapping projects, <http://lidar.cr.usgs.gov/>.
 - e. To gather real time information for operational actions and to develop more refined historical rain fall data, the utility should explore the purchase and installation of an automated rain gauge system similar to the system installed by the City of Springfield, Missouri. This effort could be coordinated with the University of Missouri and Boone County as part of their joint MS4 permit compliance. <http://www.springfieldmo.gov/2153/Rain-Gage-Network>.
 - f. To champion the ongoing engineering needs and application of technology, it is recommended the city designate an engineering manager or increase the current level of engineering support for the storm water utility.
- B. The MTFI recommends the city computer model the storm water system hydraulics. This will allow the city to better assess current loading, surcharging potential, impact of added flow from new or annexed development, and the potential benefits from system improvements. It will provide the city with more effective information to identify problem areas, optimize system flow, and predict impact from changes. The MTFI expects an initial one-time cost for development of the model funded from the respective capital funds, followed by an annual operating expense to keep the model current.

- C. It is recommended the city's storm water utility expand its assessment of projects with a consistent and objective grading system to help prioritize maintenance, renovation, and capital projects. This will help the utility stay focused on the priorities with a fair, open, and defensible procedure. Some suggested assessment criteria, not in priority order, include:
- a. Impact to public safety
 - b. Regulatory requirements and compliance
 - c. Condition assessment score
 - d. Longevity – greater weighting for older needed projects versus new
 - e. Level of impact to public and private property
 - 1. Consequential impact – expected or potential impacts of the project which create or aggravate other problems
 - f. Quality and flow impact to the various watersheds.
 - g. Necessity for supported public/private development
 - h. Willingness of property owners to correct the deficiency
 - i. Social impact – purchase of private property, use of eminent domain, etc.

Storm Water Utility – FINANCIAL/POLICY RECOMMENDATIONS

Background

In 2015 Columbia voters approved the first storm water rate increase since the storm water utility was created and adopted in 1993. Current annual (FY2016) storm water expense budget \$1.84M allocates 21% of expense to administrative, education, and engineering, 27% to capital projects, and 52% to field operations, maintenance and inspections. FY2016 revenue is estimated to be \$1.64M, leaving about \$443,000 available for CIP. FY2020 revenue is projected to be \$3.39M, leaving about \$915,000 available for CIP.

Currently there are approximately \$24 million in projects on the capital improvement program list, plus an additional \$16 million in projects identified by staff but not included in the CIP. All the projects within the current CIP list were identified by staff were evaluated and assessed as having an “immediate” need. Staff identified funding as the primary challenge for the storm water utility in order to keep pace with failing infrastructure, maintenance, improvement projects, and regulatory compliance. The CIP funding gap in 2020 will be \$1million and by 2030 it will be \$10 million. This obvious shortfall in the city's ability to repair and replace existing infrastructure will be felt more drastically as time passes unless substantial steps are taken to address the lack of financial resources available to the storm water utility.

- A. The storm water utility should begin the process of acquiring the necessary data to transition the residential storm water rate structure from being based on the approximate main floor area of each dwelling unit to being based on the total impervious area on each developed property.

Discussion

The MTFI understands this change in billing rate structure would require a public vote and approval, therefore it is also recommended that the city begin preparation for introducing the new rate structure on the next attainable ballot opportunity, along with corresponding public education for the new rate structure. The MTFI believes it would be more equitable if the storm water rate for each residential property was based on the total impervious area on the property (The same as on non-residential property) as previously recommended by multiple studies, most recently in September 2014. The intent being to both eliminate the storm water charges for second, third, fourth, etc. floor dwelling units, which do not increase storm water runoff, and establish direct correlation of charges with actual impervious area contributing to storm water runoff.

- B. The storm water rate should be more consistently billed and collected.

Discussion

At the present time the storm water rate is only being billed to the utility account holder of a developed property when the utilities are on at the property. This results in the storm water bill not being collected for many developed properties that are vacant or unoccupied and the utilities have been shut off. It also results in the storm water charge not being collected when the account holder defaults. The MTFI suggests the following possible remedies for these issues 1) Require a deposit specifically for storm water bill for new utility customers and reconnections. 2) Change storm water ordinance to bill to property owners for all residential and non-residential properties.

- C. In certain situations, the monthly storm water fee should be billed on a quarterly, biannual or annual basis.

Discussion

At the present time the city does not bill the monthly storm water rate when the cost to send the bill approaches or exceeds the amount of the rate. It would be more equitable and would allow for revenue to be increased without increasing rates if, in some situations, the monthly storm water charge would be billed on a quarterly, biannual or even an annual basis.

- D. The city's storm water utility should seek the financial advice of the city's private financial advisor and the city's bond counsel firm to explore the option to issue special obligation bonds to accelerate the future financing of storm water capital improvements.

Discussion

The bonds would be repaid from net revenue of the storm water utility operations. For example, a bond issue of \$10,000,000 at an interest rate of 4% and 25 years requires an annual payment of approximately \$650,000 with a bond reserve fund of \$65,000.

- E. The city's storm water utility should request that the finance director, city manager, city attorney, chamber of commerce, city bond counsel and the Missouri Municipal League approach the city's state congressional representatives to legislate into law a "Storm Water Revenue Bond Statute" thus enabling municipalities in Missouri the authority to issue storm water revenue bonds for capital improvements.

Discussion

Currently, there is no specific statutory authority, but would appear to have support from all the municipalities in Missouri that currently have set up storm water utility enterprises.

- F. The city attorney should review Chapter 250 of the Revised Statutes of Missouri to identify any authority the city may have to combine the storm water utility with the sewer utility so that the combined utility could issue bonds on behalf of the storm water utility to finance system improvements through the issuance of combined storm water and sewer revenue bonds.
- G. A storm water cost of service study should be conducted at least every 5 years.

Discussion

The expected revenue for the storm water utility based upon the recent ballot issue has projected annual revenue for residential and commercial customers at a level of \$3,454,082 in FY2020. A straight-line 10% adjustment in the residential and commercial rates equates to approximately \$345,000 per year in additional revenue to pay operational needs and capital needs. Currently, all rate increases require voter approval.

- H. The city should seek the creation of a Neighborhood Improvement District in Chapter 67 of the Revised Statutes of Missouri to finance public improvements that will benefit the district through assessments on properties within the district.

The MTFI recognizes there may be special conditions within the city's various watersheds that could seek Storm water facilities are an eligible purpose in the statute.

Streets & Sidewalks – OVERVIEW

The City of Columbia has an obligation to its citizen customers to provide safe and efficient transportation systems. Streets and sidewalks represent a significant infrastructure investment to our City. Transportation infrastructure evaluated in this report is limited to streets and sidewalks and specifically excludes related city services such as the transit system, park trails, the airport and public safety items. While the excluded areas are tied to transportation infrastructure, especially regarding funding sources, these were outside of the scope of the MTFI. Street and sidewalk infrastructure encompasses pavement/ right-of-way maintenance responsibilities, future planning, new street design and new street construction.

Operational

Pavement maintenance is the responsibility of the city Public Works Department, and includes asphalt overlays, pavement repairs, snow removal, and street sweeping among other activities. The Public Works Department has transitioned from ‘a worst locations first’ approach to a system of programmed preservation treatments designed to extend the life of streets. The Public Works Department has found this proactive approach and “Pavement Preservation” process is less costly. The “Pavement Management” goal is to continue to develop a process where data based, cost effective decisions on maintenance priorities can be made. In 2012 the City updated its street standards and specifications to increase longevity of new streets and sidewalks.

The City of Columbia acquires streets through annexation, accepted for maintenance from private developments (i.e. residential subdivisions), taken over from MoDOT, taken over from Boone County and constructed by the City’s CIP process.

Future planning for Columbia street and sidewalk infrastructure is guided by the Columbia Area Transportation Study Organization (CATSO). CATSO is comprised of a coordinating committee and a technical committee, with representatives from MoDOT, Boone County, and the City of Columbia, which are tasked with preparing multiple studies and reports, including: Long Range Transportation Plan (LRTP), Unified Planning Work Program (UPWP), Transportation Improvement Program (TIP), 2040 CATSO Major Roadway Plan, and 2040 CATSO Bicycle & Pedestrian Network Plan. These plans and reports encompass the entire Columbia Metropolitan area, and also cover issues outside the scope of this report, such as the Transit System, Rail System, and Land Use Planning. Further overview information on all the responsibilities of CATSO can be found in the 2040 LRTP Executive Summary. Implementation of these city specific projects is more specifically prioritized by the Capital Improvement Program (CIP), which includes a formal public involvement process (see attachment). The CIP provides a list of projects and the target year for design, construction and completion respectively. The City Council then authorizes certain projects in each Fiscal Year (FY) Budget Plan.

In addition to the above mentioned process there are many other organizations and plans which may help guide city policy and future planning. These include but are not limited to:

- 2011 Infrastructure Task Force Report
- 2011 Infrastructure Minority Report

- 2015 Capital Improvement Sales Task Ordinance
- 2014 Downtown Columbia Leadership Council (DCLC) Infrastructure Report
- 2014 Columbia Imagined
- 2015 City of Columbia Disability Commission on priority intersections

Also available are numerous road and area specific plans and studies not listed but instrumental in guiding city staff recommendations on proposed infrastructure.

- In 2004 the CATSO transportation Plan established functional classification system for roadways in Columbia.
- In 2004 the “Complete Streets Policy was adopted, incorporating sidewalks, greenspace and bike lanes.
- In 2006 Get About/ Pednet was established which promotes and funds through federal grants non-motorized transportation. The Getabout funding is expected to be depleted by 2018.

Financial

- Street and Sidewalk Maintenance and Capital Improvements are funded through a variety of sources and broken down below:
- Transportation Sales Tax (TST) has a projected revenue of \$11,809,636 for FY 2016. 60% of this is allocated to street and sidewalk maintenance, 22% is allocated to the bus transit system, and 18% is allocated to the airport.
- Capital Improvement Tax has a projected revenue of \$5,904,871 for FY 2016. Of this approximately 35% is allocated to Public Safety projects and 65% is allocated to Capital Improvement projects.
- Other funding from the General fund, State Fuel Tax, Transportation Sales Tax (TST), Federal Transit Administration (FTA), Community Development Block Grant (CDBG), Federal Highway Administration (FHWA) Non-motorized get-about Columbia.
- Current “Development Fee” of \$0.50/Square Foot. Budgeted at \$1,350,000 for FY 2016.

The MTFI also reviewed the recommendations and progress toward the recommendations of the 2011 Infrastructure Task Force, the most recent group considering infrastructure policy prior to this work.

Openness/Separation – It was recommended City staff implement policies to clarify financial reports so it is easier to “follow the money.” Also that the City’s financial reports clearly delineate between the maintenance budget and the capital improvements budget for infrastructure expenses whenever possible.

2016 Status: Changes have been made to categorize by function.

Discussion

It is the MTFI view that this recommendation is valid and should be continued to be improved upon, with no formal specific recommendation.

Funding Mechanisms -

- a. Streets/Sidewalks – The TST should be reserved strictly for streets and sidewalks improvement, maintenance and expansion. TST funds typically budgeted for the airport and the bus system would instead derive from bonds.

2016 Status: Not implemented. Current allocation of the TST as mentioned previously is 60% to street and sidewalk maintenance, 22% to public transit system, and 18% to the airport.

Discussion

This is not within the MTFI scope to address the Airport and Bus System Funding, however we recommend to council to maintain or increase the split to roads and sidewalks as much as possible..

- b. Airport/Buses – Recommended increase airport funding, and adequately fund the bus system by seeking a new ten-year general obligation bond supported by a property tax increase of no greater than \$0.20 for capital investment.

2016 Status: Not implemented.

Discussion

This is outside the scope of the MTFI.

- c. Capital Improvements – Recommended the Capital Improvement Tax should be extended and also increased by an additional $\frac{1}{4}\%$. Also recommended that at least 50% of the additional $\frac{1}{4}\%$ should be dedicated to streets and sidewalks.

2016 Status: CIT was extended in 2011 but the additional $\frac{1}{4}\%$ was not incorporated into the ballot issue, thus not implemented.

Discussion

The MTFI has made a recommendation that the $\frac{1}{4}\%$ sales tax be renewed after the 2015 increase ends in 2025,

- d. Development-Related Infrastructure – Recommended the city not rely on development fees for funding of infrastructure but instead find other mechanisms for funding. Also recommended to formulate a more standardized approach, rather than the current common practice of negotiating developer contributions on an inconsistent, case by case approach.

2016 Status: No significant change in development fees, or fee structure as proposed. In 2014 an increase to the development fee was put on the ballot to increase Residential Development fees to \$1.00/square foot, and commercial development fees to \$1.50/ sq. ft. for low trip generation uses and \$2.00/ sq. ft. for high trip generation uses, but failed to pass.

Discussion

The MTFI would support some additional development fees for funding of capital projects if the second part of the recommendation is incorporated.

Use Tax – Stated that the City and Boone County could jointly benefit from a Use Tax and should therefore pursue implementation simultaneously.

2016 Status: Tax was passed in August election.

e. Columbia Vehicle Registration Fees – Recommended an annual fee of \$10 (for example) be assessed on individual personal property tax bills for vehicles, trailers, motorcycles, scooters, RV's, etc and dedicating 100% of this revenue to street maintenance and marketing the accompanying ballot issue as a “pothole tax”.

2016 Status: No action has been taken.

Discussion

MTFI recommended review of e-commerce tax as possible source of funding.

2016 Status: No action has been taken

f. Bicycle License/Permit – Recommended a fee imposed on the sale of bicycles.

2016 Status: No action has been taken.

Streets & Sidewalks – FUNCTIONAL RECOMMENDATIONS

- A. The city should continue to coordinate and work with MoDOT and Boone County, as suggested in the Columbia Imagined Document, to adequately plan for and construct critical collector and arterial roads which may not currently be completely located within the city limits, but serve property likely to be annexed within the urban service area.
- B. The city should adopt ordinance language that formally allows property owners/neighborhoods to coordinate and perform their own snow removal.

Streets & Sidewalks – FINANCIAL/POLICY RECOMMENDATIONS

- A. The city should evaluate funding future “major” transportation infrastructure projects which are integral to the City of Columbia, such as the I-70/63 Interchange or the Route 740 extension to I-70 by utilizing a single issue ballot item for a dedicated funding source.
- B. The city should extend the ¼ cent capital improvements tax when it expires in 2025.

- C. The city should voice support for state fuel tax which would incorporate local cost share programs.
- D. The city should support state pilot projects which look at mileage-based fees as an alternate method of collecting fees as alternate fuel vehicles and fuel efficiency change effectiveness of fuel taxes.
- E. The city should investigate objective methodology for quantifying street deterioration due to construction traffic, from start to substantial completion of individual construction projects. Determine if a maintenance fee should be imposed for each project proportional to street maintenance that may be required due to construction traffic impacts.
- F. The city council should further review development fees.

Discussion

The MTFI has found that the current fee of \$0.50 per square foot of building area is not sufficient to cover most developments impact to surrounding infrastructure and therefore, currently, separate, case-by-case fees or requirements are imposed on the developer. This current practice has been criticized for a lack of predictability, fostering negotiations between the developer and the City which lack transparency, being subjective in nature, and promoting unequal charges, based on percent impact, to current and subsequent development. The MTFI believes increased development fees, and/or a different objective and predictable mechanism to fund development impacts on infrastructure should be pursued, while case-by-case negotiated fees should be minimized.

- G. The city should form a separate group or advisory board to review these development fees, in order to present a more complete and specific proposal to the City Council for consideration, and may incorporate ideas from the following recommendation (H).

Discussion

The MTFI believes this is necessary in light of the complexity and political nature of the issue.

- H. The city should use revenue generated from development fees to commission regional traffic studies, such as the Boone County Northeast Transportation Plan (October 2012), in coordination with neighboring transportation jurisdictions, such as MoDOT and Boone County, to (1) forecast the traffic generated from all potential future development over the next 20 years, (2) identify how much traffic will be distributed on local roadways, (3) identify what roadway improvements are needed to accommodate all forecasted future travel demands, (4) identify the cost needed for these improvements, and (5) develop and identify possible funding mechanisms for these improvements.

Discussion

These studies could be used by city staff and city council to establish a trip generation fee framework to ensure that new developments share of the cost of capacity per unit of development and the associated road improvements necessitated by such development are attributed to the development. Such costs should be determined and assigned in a manner that: 1) is reasonably related to impacts caused by the development, 2) is roughly proportional to the impacts caused by the development, and 3) are applicable regardless of the jurisdiction in which the development occurs.

- I. The city should develop new criteria for when a traffic study would be triggered for development applications, based on how the proposed development matches with the assumptions made in current CATSO study, the previously recommended regional traffic study adopted by the city, and regardless of whether a zoning charge is requested/needed.

Discussion

Thus, if a proposed development was in compliance with the adopted regional traffic study, then the fees stipulated in said regional study would apply, while if the use was outside of the assumptions made then the developer provided traffic study would assess what additional or reduced impacts and costs should be attributed to the development.

Sewer Utility - OVERVIEW

The Sewer Utility is charged with the responsibility to protect the public health and ensure minimal impact to the environment by adequate collection and treatment of wastewater within a regional area that includes the city of Columbia. This is achieved by providing engineering review of proposed facilities and by effective and economical management of existing collection and treatment systems.

Objectives

- To ensure new construction meets current Federal, State and City requirements.
- Provide the lowest practical cost for maintaining sanitary sewer facilities and resources.
- Provide proper collection and treatment of wastewater by complying with regulatory standards.
- Provide a prudent, reasonable, and responsible approach to meeting the objectives through careful management.

Inflow and Infiltration (I&I). I&I is rainwater entering the utility system that then has to be treated as wastewater. The Sewer Utility must significantly reduce I&I as per regulatory requirements and in the context of many other challenges and responsibilities in maintaining and developing storm water infrastructure. The oldest public sewers were constructed in 1901. The pipe that was available 115 years ago and the construction and inspection techniques that were used in 1901 were considerably inferior to the pipe and the construction and inspection techniques that are being used today. Prior to the mid 1950's clay pipe joints were typically made in the field using hot asphalt or cement mortar. These joints were neither water-tight or root-proof. Between the mid 1950's and the early 1970's clay pipe with leak-free, factory applied, compression joints were manufactured. Air-acceptance testing and improved pipe bedding standards also were not implemented until the 1970's. Although PVC pipe was added to the list of approved pipe in the late 1970's much of the city's sewer collection system consists of clay pipe.

I&I reduces the ability of the sewer system to effectively transport and treat wastewater. As a result of excessive wastewater collection and treatment processes are disrupted during larger rainfall events which results in untreated or poorly treated wastewater being discharged from the sewer system to the environment. All the wastewater being discharged from the treatment plant and wet lands meets permit limits even during the largest of rains.

I&I causes additional issues. Untreated wastewater overflows of the sanitary sewer have to be cleaned up and there are potential fines, if the overflow problem is not addressed. Additionally, sewer system backups into homes, businesses and onto private property create a health hazard and can result in litigation and potential liabilities. I&I must be addressed to support additional customers on the system.

I&I costs the Sewer Utility and the utility's wastewater customer's large amounts of money in unnecessary wastewater collection and treatment expenses. It is estimated that as much

as 10-15% of the water entering the wastewater system annually is due to I&I. During a rain as much as 80% of the water being treated is due to I&I. Costs associated with processing the added clean water from I&I are eventually passed back to each wastewater customer. By reducing I&I costs can be lowered. Minimizing I&I can also increase the life and capacity of the wastewater treatment plant and wastewater collection system.

I&I problems are typically very difficult to identify and resolve because of the enormity of the infrastructure in place. The public sewer system consists of approximately 675 miles of sewer pipe and more is being installed daily. An I&I reduction program was began in 2010 in Flat Branch Basin D where flow monitoring had determined the ratio between the average wet weather flow (AWWF) and the average dry weather flow (ADWF) was 16:1. The immediate goal of the I&I reduction program was to reduce the amount of I&I in Basin D to a level that would eliminate all wet weather related basement back-ups and sanitary sewer overflows. The ultimate goal of the program was to reduce the ratio between the AWWF to ADWF to 3:1, or less.

In November 2013 voters approved a \$32.3 million revenue bond issue which provided funding for several sewer improvement projects. The projects included I&I reduction efforts, collection system rehabilitation, wastewater treatment plant digester improvements, private common collector elimination (PCCE) projects and sewer extensions.

The city has spent approximately \$8,000,000 on system rehabilitation and I&I reduction from fiscal year 2012 through 2015. Substantial removal of defects identified in the Flat Branch watershed was recently completed and a \$2.7 million sewer main and manhole rehabilitation project by "no-dig" methods to reduce I&I will soon be completed. Rehabilitation work to eliminate defects in the County House Branch sub-basins recently began to be addressed and rehabilitation work in additional sub-basins will soon follow.

Revenue - Sewer charges are the primary source of revenue for the Sewer Utility. The most current American Community Survey data from 2014 estimates about 23 percent of homeowners and 57 percent of renters locally are burdened by housing costs. Those who are most at risk of homelessness — people who spend 50 percent or more of their income on housing — include about 7,230 renters and 1,300 homeowners in Columbia. Individuals are considered burdened by housing costs if more than 30 percent of their household income goes toward rent, utilities or home loans.

The Sewer Utility must significantly increase sewer revenue in order to generate the money that will be needed to reduce I&I. However, in today's economic climate it is important that sewer rates remain low and each household be treated equitably. One customer or one customer classification should not be favored over another. This type of special consideration cannot be justified and does not fairly distribute the cost of providing sewer service.

The Sewer Utility should strive to find ways of increasing sewer revenue - without increasing sewer rates - to generate the revenue needed to repair and improve its

deteriorating sewer infrastructure. The sewer rate structure must be equitable and reward conservation - not consumption.

Sewer Utility - FUNCTIONAL RECOMMENDATIONS

- A. The city should create a comprehensive wastewater collection system model, including physical and hydraulic attributes.

Discussion

This will allow the City to better assess current loading, surcharging potential, impact of added flow from new or annexed development, and the potential benefits from system improvements. Will provide the City with more effective information to identify problem areas, optimize system flow, and predict impact from changes. The MTFI expects an initial one-time cost for development of the model funded from the respective capital funds, followed by an annual operating expense to keep the model current.

- B. The city should explore coordinating with the University of Missouri and the County of Boone the purchase and installation of an automated rain gauge system similar to the system installed by the City of Springfield, Missouri, <http://www.springfieldmo.gov/2153/Rain-Gage-Network>.

Discussion

Will allow the city to gather real time rainfall data for sewer operational actions and develop more refined historical rainfall data.

- C. The city should amend Ordinance Sec. 22-262 (a) (1) to reflect a residential sewer user is “the owner or occupant of a dwelling unit that is connected directly or indirectly to the city’s sanitary sewer system”.

Discussion

The present ordinance states that a residential sewer user is “a user of a dwelling unit that is connected to the city’s sanitary sewer system and served by one (1) water meter.” Although there are approximately 11,000 dwelling units that are also served by one water meter (a master water meter) the city’s intent, as demonstrated by the recent unsuccessful attempt to amend this ordinance was to classify master metered dwelling units as nonresidential sewer users. How, or even if, a sewer user is metered for water should not be a factor in determining how the sewer user is classified.

- D. The city should rehabilitate or replace a minimum of one percent of the sewer collection system annually.

Discussion

Much of the city’s sewer system, especially the portion of the sewer system constructed with vitrified clay pipe, has surpassed its useful life and is suspected to

be a major contributor of inflow and infiltration (I&I) which overloads the sewer system.

- E. The city should implement a backflow prevention program that would provide financial assistance to qualifying property owners that the city confirms experienced a sanitary sewer back-up as a result of a city sewer main being surcharged due to excessive I&I (staff to provide an estimated annual funding cost).

Discussion

The city should be responsible for sewer mains that surcharge due to excessive inflow and infiltration.

- F. In order to reduce the amount of inflow and infiltration entering the city's sewer system the city should pursue programs that place a greater responsibility to identify and eliminate private sources of inflow and infiltration on the private property owner, such as downspouts and sump pumps.

Discussion

- a. At the present time the sewer utility does not require periodic inspections of private property connected to the city's sewer system to identify sources of inflow and infiltration. There are several programs that have been used in other communities that should be considered, including point of sale inspections and property maintenance code compliance inspections.
- G. The city should assume responsibility for all connection points with the public sewer as well as responsibility for any portion of a private sewer service lateral located within a public right-of-way or within a dedicated sewer easement.

Discussion

At the present time the property owner is responsible for the property sewer connection point with the public sewer as well as the private sewer service lateral from the property owner's residence or business to the connection point with the public sewer. Poor and deteriorated connection points and the lower portion of the sewer service lateral are the most significant sources of I&I and also contribute to street pavement failures. If the city was responsible for all connection points and for any portion of any private sewer service lateral located within a public right-of-way or dedicated sewer easement coordinating sewer repairs that would significantly reduce I&I would be possible. Having a poor and deteriorated connection point or a faulty sewer service lateral are violations of the sewer ordinance. However, rather than enforcing the violations of the sewer ordinance shown below (in italics) the Sewer Utility has used public money to randomly repair poor and deteriorated connection points and faulty sewer service laterals.

Sec. 22-216.1. - Unlawful acts.

It shall be unlawful for any person:

(4) To allow the entry of ground water or storm water to the sanitary sewer

system through: a faulty sewer service line or connection point with the public sanitary sewer, surface water area drain, subsurface cleanout, roof drain, or by pumping any unpolluted water except in accordance with the provisions of this article and the plumbing code adopted by the city.

(5) To utilize a sanitary sewer service connection point that is structurally poor and deteriorated, protruding into the public sanitary sewer, causing infiltration or inflow of subsurface water, or permitting the growth of tree roots into the public sanitary sewer.

- H. The city should resume investigating and rehabilitating the sewers in the “I&I Pilot Study Area” (Basin D) identified in a staff report to the city council dated July 23, 2010, to determine the repairs that would be needed to achieve the city’s stated goals of eliminating all wet-weather basement back-ups and sanitary sewer overflows and reducing the ratio between the average wet weather flow to the average dry weather flow to 3:1, or less.

Discussion

Basin D was selected as the “I&I Pilot Study Area” due to its having a long history of sanitary sewer overflows. The rainfall event that occurred on July 3, 2016, demonstrated that neither of the city’s stated goals were achieved.

- I. It is recommended the city’s sewer utility expand its assessment of projects with a consistent and objective grading system to help prioritize maintenance, renovation, and capital projects. This will help the utility stay focused on the priorities with a fair, open, and defensible procedure. Some suggested assessment criteria, not in priority order, include:
- a. Impact to public safety
 - b. Regulatory requirements and compliance
 - c. Condition assessment score
 - d. Longevity – greater weighting for older needed projects versus new
 - e. Level of impact to public and private property
 - 1. Consequential impact – expected or potential impacts of the project which create or aggravate other problems
 - f. Necessity for supported public/private development
 - g. Willingness of property owners to correct the deficiency
 - h. Social impact – purchase of private property, use of eminent domain, etc.

Sewer Utility – FINANCIAL/POLICY RECOMMENDATIONS

- A. The city should engage an independent consultant to assess if the following practices are either appropriate or equitable:
- a. Should how a sewer user is metered for water be used as the basis for classifying the sewer user as a residential or nonresidential sewer user?

- b. Should there be any monthly sewer service charge assessed to the owner of a property that is connected to the city's sewer system that is vacant or unoccupied?
- c. Should the owner of a property be responsible for any monthly sewer service charges not paid by a tenant/resident of the property, within the limits of state law?
- d. Should the sewer base charge be based on the size of water meter serving the property, or in the case of a multiple unit property that is master metered for water service, should the sewer base charge be the sum of the fees that would have been charged to each unit of the property, had each unit been separately metered?
- e. Should the residential sewer base charge be based on a tiered rate structure that is based on the square footage of the dwelling unit (similar to the present storm water charge)?
- f. The sewer connection fee provided for by Sec. 22-264 should be applied correctly or if not, amended as follows:

Sec. 22-264. - Connection fees.

Each new user of the wastewater system shall pay a wastewater system connection fee. The fee shall be two thousand dollars (\$2,000.00) per dwelling unit. If there are uses on the property other than dwelling units, each new user of the wastewater system shall pay a wastewater system connection fee based on the size of the water meter that shall serve each new user or in the case of a property with multiple new users that chooses to install a single water meter, the wastewater system connection fee shall be the sum of the fees that would have been charged to each new user, had each new user been separately metered for water.

- B. The city should engage an independent consultant to review the 20-year sewer agreements between the city and the Boone County Regional Sewer District (BCRSD) to determine:
 - a. If the 20% discount of the inside the city sewer rate the city is providing to the BCRSD for each BCRSD customer interconnected to the city's sewer system, regardless if the BCRSD customer is located inside or outside the city limits, is justified.
 - b. If a realistic provision should be established for a BCRSD customer interconnected to the city's sewer system to become a city sewer customer at the conclusion of the first 20-year sewer agreement.
 - c. If a BCRSD customer that is connected directly to a city sewer should become a city sewer customer.
 - d. If the city should charge the BCRSD a sewer volume charge based on flow metered volume discharged to the city's sewer system rather than a volume charge based on each BCRSD customer's water metered volume.
- C. The city engage an independent consultant to review the appropriateness of Ordinance 22-266 that allows the city to charge each sewer customer whose

property is located outside the corporate limits of the city and within any unincorporated area a sewer service charge and connection fee equal to the inside the city charge plus fifty (50) per cent and allows the city to charge each sewer customer whose property is located outside the corporate limits of the city and within the corporate limits of any other municipality, or in an area whose inhabitants have instituted proceedings for incorporation as another municipality, a sewer service charge and connection fee equal to the inside the city charge plus one hundred (100) per cent.

Discussion

The city should not be charging sewer customers located outside the city more than sewer customers located inside the city because the city's wastewater treatment facility is a regional facility that was constructed primarily with federal money, the majority of the outfall sewers that connect the city's sewer collection system to the regional wastewater treatment facility were constructed primarily with federal money, the revenue used to operate and maintain the regional wastewater treatment facility and the sewer collection system is generated primarily from user charges and fees and there is no tax revenue from residents outside of the City of Columbia used to operate and maintain the regional wastewater treatment facility or the sewer collection system.

- D. The city should amend Policy Resolution PR115-97A which requires annexation to the City of Columbia in order for the city to provide sewer service to a property to reflect that annexation is not required in cases where there is a public health concern or regulatory compliance issue.

Discussion:

This would be intended only to apply to existing developments and would not allow for any expanded use of the current property. Annexation to the city brings additional requirements and responsibilities to the property owner, which may be overly burdensome, and hinders the necessary remedy of wastewater compliance.

- E. The City should have an independent review of its sewer charges and fees collected from each customer classification.

Discussion

If a particular customer classification discharges 60% of the wastewater that customer classification should account for 60% of operation, maintenance and replacement costs.

Electric Utility Downtown - OVERVIEW

For the past 100 years, Columbia Water and Light has been owned by the people and operated for the people of the community. Thanks to the foresight and progressive spirit of the town's forbearers, Columbia's citizens continue to enjoy the many advantages of public ownership.

Local Control - Public ownership means local control: every citizen has a voice in the policies that affect rates and service. City Council, with guidance from the citizen-based Water and Light Advisory Board, makes all major policy and budget decisions affecting the utility. This stands in stark contrast to modern-day investor-owned utilities, many of which are bought and sold by large, profit-driven corporations and often located hundreds—or even thousands—of miles from the customers they serve.

Lower Rates - As a publicly owned utility, Columbia Water and Light is not beholden to investors or shareholders, which enables the city to keep rates lower. Even when faced with extraordinary external economic pressures, such as the Great Depression and the 1970s Energy Crisis, Columbia's electrical rates and water rates have remained comparably low. Today, Columbia's electric rates and water rates are still among the lowest in Missouri.

Like most mid-sized communities that are home to major universities, Columbia experienced above-average population growth over the years. City boundaries changed the most during a series of annexations in the 1960s. Columbia Water and Light has had service territory agreements in place for almost 30 years that define water and electric service territories, regardless of how the city's boundaries change.

Jobs and Revenue - Columbia Water and Light currently employs about 250 people who live in and around Columbia. Keeping these jobs at home is good for the local economy. The utility also contributes significantly to the city's financial well-being. Water and Light conducts operations like an independent business, and contributes to the city's tax base through payments in lieu of tax, gross receipts tax and property taxes.

Community Commitment - In addition to providing numerous efficiency programs to help residential and commercial customers save energy and money, Columbia Water & Light helps educate future generations through the Partners in Education program with the Energy Choices, Saturday Science and an energy efficiency marketing competition. Columbia Water & Light is also active in community tree plantings and programs to help low-income residents with affordable housing.

In 2016, Columbia Water and Light's payments in lieu of taxes came to more than \$7.5 million.

Reliability is Job One - One of a utility's most important responsibilities is to ensure reliable service. For decades, the city has reinvested in the electric distribution system, ensuring well-maintained and technologically sound transmission lines, transformers and other equipment. The system is engineered with many built-in redundancies to help prevent

interruptions in service in the event of equipment failures or natural disasters. Built-in “loops” enable workers to reroute the system and quickly put customers back on while repairs are made.

To ensure adequate power supply, the city has multiple long-term contracts and interconnection agreements with power wholesalers and marketers, affording many options for purchasing or producing power. Columbia also has maintained the ability to generate electricity through the city-owned natural gas generators and renewable energy sources. Columbia has a renewable energy mandate that requires increasing amounts of renewable energy within the electric supply. Since 2009, Columbia has surpassed the amount required in the renewable energy ordinance through contracts and locally produced energy by the utility and customers.

Historical Perspective of Downtown Load Serving Centers - From 1904 to 1961, the Municipal Power Plant was the only source of electricity for the entire city. The original electrical distribution system was 2,400 volts. The first transmission lines were 13.8 kilovolts. Today, four electrical substations service the downtown area with thirteen 13.8 kilovolt distribution feeder circuits. Seven are from the Power Plant substation, three are from Rebel Hill substation, one is from Grindstone substation and two are from Hinkson Creek substation. Ideally, each feeder circuit can serve 7 Megawatts (MW) of electrical load. The percentage of load on each of the thirteen feeder circuits that is actually within the downtown area varies from 90% to 10%. The 2015 electrical loading for the downtown area plus the load estimates of known new development is 67 MW. With all electrical elements in service and taking into account the percentage of loading of the circuits within the downtown area, the available capacity is 77 MW. The electrical system is designed with a level of redundancy to ensure that all customers can be served with any one element (transformer, feeder circuit, etc.) out of service. With this level of redundancy, the worst single element out of service and taking into account the percentage of loading of the circuits within the downtown area, the available capacity is 69 MW. This gives a realistic spare capacity of 2 MW for the downtown area.

The development of the Mill Creek electrical substation is the engineered solution to remedy the critical capacity and redundancy needed for the downtown area. The Mill Creek electrical substation project was a part of the recent electrical bond issue passed in April of 2015 and was approved by 68% voter approval. The property for the Mill Creek Substation has been purchased. The substation would provide 8 new feeders with 7 MW of capacity each to the 13.8 kilovolt electrical distribution system from the 161 kilovolt transmission system. Water & Light currently has plans for unloading its existing feeder circuits with this new capacity, 4 at Hinkson Creek substation, 2 at Perche Creek substation and 2 at Grindstone substation. Additionally, it has plans to redirect 2 Hinkson Creek feeder circuits to give an additional 14 MW of capacity into the downtown area. The development of the electrical substation enhances the partnership with the University of Missouri.

In summary, the substation addition and feeder reconfigurations listed above will impact the downtown area as follows: Electrical loading for the downtown area is 67 MW. With

all electrical elements in service and the two new feeder circuits into the downtown area, the future capacity will be 91 MW. With the level of redundancy described above, the two new feeder circuits into downtown area, and the worst single element out of service, the available capacity is 77 MW. This gives a realistic future spare capacity of 10 MW for the downtown area.

Electric Utility Downtown - FUNCTIONAL RECOMMENDATIONS

- A. Due to the rapidly approaching complete loss of spare electric capacity in the downtown area, the MTFI recommends to the city council that the proposed Mill Creek Electrical Substation be built and be connected by appropriate transmission lines to benefit the downtown area.
 - a. This project is on the current electrical system CIP funding list.
 - b. If the current 2MW spare capacity is consumed, the city council should evaluate an “Administrative Delay” for construction, which exceeds current electrical demand, in the downtown area.

Discussion

The development of the Mill Creek electrical substation is the engineered solution to remedy the critical capacity and redundancy needed for the downtown area. The Mill Creek electrical substation project was a part of the recent electrical bond issue passed in April of 2015 and was approved by 68% voter approval. The property for the Mill Creek Substation has been purchased. The substation would provide 8 new feeders with 7 MW of capacity each to the 13.8 kilovolt electrical distribution system from the 161 kilovolt transmission system. Water & Light currently has plans for unloading its existing feeder circuits with this new capacity, 4 MW at Hinkson Creek substation, 2 MW at Perche Creek substation and 2 MW at Grindstone substation. Additionally, it has plans to redirect 2 MW Hinkson Creek feeder circuits to give an additional 14 MW of capacity into the downtown area.

- B. The MTFI recommends the City explore and establish a policy to adequately fund the cost of new or increased service for electric customers, such as a line extension policy. The overall goal of the policy should be to collect sufficient funds from new or increased service through a combination of fees and rate to serve their new electric loads without creating a financial burden to existing rate payers. The policy should establish objective methodology for calculating financial impacts and the necessary customer contributions to serve these new or increased electric loads.

Discussion: Existing rate payers should not bear the cost of connecting new development or increased service needs of existing customers. The policy should be developed to capture all associated costs of these new or changed services within a reasonable time frame of five-years or less. Additionally, the policy should be structured to equitably support development without incentivize it through existing rate payers.

- C. The MTFI recommends the City explore and establish a policy to adequately fund the cost of new or increased service for electric customers, such as an electric connection fee policy. The overall goal of the policy should be to collect sufficient funds from new or increased service through a combination of fees and rate to serve their new electric loads without creating a financial burden to existing rate payers. The policy should establish objective methodology for calculating financial impacts and the necessary customer contributions to serve these new or increased electric loads.

Discussion: Existing rate payers should not bear the cost of connecting new development or increased service needs of existing customers. The policy should be developed to capture all associated costs of these new or changed services within a reasonable time frame of five-years or less. Additionally, the policy should be structured to equitably support development without incentivize it through existing rate payers.

Electric Utility Downtown - FINANCIAL/POLICY RECOMMENDATIONS

- A. Explore demand rate billing for residential class customers, and investigation of phasing in meters that use advanced metering technology such as Automated Metering Infrastructure (AMI), cost vs benefit with technology/billing trends in mind.
- B. Re-evaluate the net zero policy for renewable energy sources.
- C. Evaluate equity of base charges for master metered vs individually metered properties to ensure customers are properly classified so they are not unintentionally subsidizing other classes as part of the next Electric Cost of Service Study. The MTFI has identified the following areas that should be investigated:
 - a. The city would assess a “customer” charge to the owner or occupant of each residential dwelling unit and each nonresidential unit where city electric service is provided.
 - b. The “customer” charge, which would replace the present electric minimum charge, will recover a portion of the general operation and maintenance costs.
 - c. The city may discount the “customer” charge when the electric meter supplying electricity to a property is inactive (off).
 - d. The city may allow the “customer” charge to be billed to a tenant/resident of an individually metered property; however, the owner of the property will be responsible for any electric “customer” charges not paid by a tenant/resident, within the limits of state law.
 - e. The electric “customer” charge should be based on the type of electric service provided the location, except, in the case of a multiple unit residential or nonresidential facility that is master metered for electric service the

“customer” charge should be the sum of the fees that would have been charged to each unit of the facility, had each unit been separately metered. In calculating this fee, the city should take into account the type of electric service that would have been required to separately meter each unit.

- f. In order to ensure that the “customer” charge is equitable the “customer” charge should be a graduated charge based on the capacity/size of electric service.

General/Global - FUNCTIONAL RECOMMENDATIONS

- A. The city should encourage 'value added' annexation and development to the City of Columbia, not necessarily limited by the Urban Service Area, to promote economic growth, maintain appropriate land uses, compact and contiguous development growth, and to retain taxes and fees received from properties within the city limits and avoid losing revenue to development outside the city limits.
- B. The city should engage independent consultants to develop a system to assess sufficiency of infrastructure resources by areas and sub-areas. The city should use this system to maintain an inventory of locations where additional infrastructure capacity is available as well as an inventory of locations where there is no additional infrastructure capacity available.

Discussion

This would allow the city to protect existing customers and prevent the problem that occurred recently in downtown Columbia.

- C. The city should require applicants provide accurate and verifiable data that the city can use to verify the adequacy of city infrastructure prior to approving a building permit. The standards of adequacy should be developed and codified in ordinance.

Discussion

This will assist the city to maintain the inventory of locations where additional infrastructure capacity is available or is not available updated.

- D. For new development and redevelopment it is recommended the city continue to consider implementing the Columbia Imagined Land Use and Growth Management recommendation: Policy One, which is to develop a scorecard system for new development and annexation proposals, which objectively assess the appropriateness of new development and redevelopment based on short and long term infrastructure costs, burdens and services.

Discussion

It is the MTFI suggestion that the city develop a scorecard system that is more narrative and qualitative as opposed to a numeric or point system, at least at implementation. It would be recommended that the scorecard be re-evaluated annually, for the first three years, to ensure its effectiveness. The MTFI envisions the document as a guideline, or educational document, to inform the regulatory bodies prior to approvals or permit issuance.

- E. Council should pursue and voice support to state legislature to implement recovery of internet sales tax in Missouri.
- F. It is recommended the city continue to develop the GIS system, and encourage participation and coordination with the Boone County Regional Sewer District

(BCRSD), University of Missouri, Water Districts, Ameren, Boone Electric, among other utilities, and to fully integrate the system with all infrastructure systems, land use, data layers and make available for public use.

- G. The city should continue to comply with environmental regulations, including Integrated Management Plan (IMP), and to enforce existing and adopt as appropriate construction regulations to prevent/mitigate detrimental environmental impact caused by public and private construction projects – See the regulations mandated by the state of California’s Environmental Quality Act for an example of such regulations.

Discussion

There continues to be community concern of detrimental environmental impact caused by utility construction projects (Hinkson Creek outfall sewer extension, Flat Branch relief sewers). Regulations similar to those being proposed would regulate public and private activities, and projects for which there exist feasible and environmentally superior mitigation measures or alternatives would not be approved.

- H. The city should establish a standing advisory board(s) structure to provide consistent, integrated and ongoing public input, advice and oversight of city utilities and related services for water, electric, sewer, storm water, solid waste and streets/sidewalks. Such a structure might include a ‘City of Columbia Public Works’ umbrella board representing each utility. Each utility would also have ‘sub’ boards, representing both professional expertise and citizen/consumer perspective regarding that specific utilities. Each sub-utility would assign a member to serve on the umbrella board. Board(s) should be established with defined roles, term limits, and a sunset provision upon which the value of the board(s) can be reviewed and extended.

Discussion

The MTFI acknowledges that a number of configurations of these advisory functions could be successfully established to meet the goals of public input, advice, and oversight. We also acknowledge the ongoing contribution of the city’s existing boards and commissions that address issues related to public utilities. The goal of our recommendation is to ensure city council receives policy recommendations for each utility informed by the recognition that an ongoing integrated approach to managing these essential public services will be most efficient in the use of public resources and most effective in preserving and enhancing what we value as well as in introducing growth in an equitable and sustainable manner. The focus of the recommended board will include long-range planning, policy, and address funding/budgeting/finance/costs issues.

General/Global - FINANCIAL/POLICY RECOMMENDATIONS

- A. The city should explore similar customer classifications across city utilities. The customer classifications should reflect how a property is being used, i.e., residential or nonresidential, rather than how a property is zoned. Sub-classifications of residential and nonresidential property may be established if justified, such as 'mixed-use'.

Discussion

Since residential dwelling units are permitted in several different zoning categories classifying property based on how a property is being used will allow utility revenue and usage to be tracked, reviewed and adjusted. The MTFI acknowledges the complexity of this task due to flexibility in use. The MTFI does not intend this recommendation to be prioritized over responsiveness and flexibility in the content or administration of the current or revised zoning code.

- B. The city should separately track each utility's base and usage charges as well as connection fees for each customer classification for each utility.

Discussion

This enhancement in data management will facilitate planning and improve forecasting capacity.

- C. The city should commission a third party, such as a bond counsel review or external auditor, to review the city's current methods of accounting for utility depreciation to determine if the city is in compliance with the requirements of the city charter and city code of ordinances.

Discussion

The city may not currently be in compliance with the requirements established in the city charter and/or city code of ordinances to establish and appropriately fund a Water and Electric depreciation fund.

Public Input

Citizens providing input through comment at public meetings –

- Joe Albright
- John Clark
- Sid Sullivan
- Maria Oropallo
- Pat Fowler
- Kris Bloom
- Dan Cullimore
- Carrie Watson
- Karl Skala

Citizens providing input as guests -

- Karl Skala
- Tim Crockett
- Randy Coil
- Ian Thomas
- Tom Ratermann
- Ben Londerel

Citizens providing input via public hearing –

- Ken Midkiff
- Jill Lucht
- Ben Londeree
- Mark Farnen
- Maria Oropallo
- Kim Fallis
- Gayle Plevins
- John Clark

Citizens providing written comments –

- Sid Sullivan
- Roy Dudark
- Tom Raterman
- John Clark

The content of public input is captured via two resources: Full minutes of all MTFI meetings are available at

<https://gocolumbiamo.legistar.com/DepartmentDetail.aspx?ID=31274&GUID=807B558F-D95C-4DA6-BDE5-51B05879F7A3&R=7b554409-36c4-433b-89f7-427c4251662a>

Voice and video recordings of MTFI meetings are also available for review at

<http://www.como.gov/council/citystream-meeting-video/>

