September 18, 2016

Mayor and City Council,

The Water and Light Advisory Board at their August 31, 2016 meeting passed by unanimous vote a motion to provide a written communication to the Mayor and City Council for an an update from the board's perspective of the viability of Option A for the Electric Transmission Line Project.

The board thinks it is important to stand back from the project and define what has caused the project to be delayed and focus the problem solving on the cause(s) rather than looking at other options. It is our interpretation that some of the public felt that **1)**the health considerations of the potential for EMF was in question, **2)**the potential impact on existing or future property values and **3)**visual perspective of a transmission line.

1) Although not a part of the overall discussion at the time of Option A, these were the same concerns expressed in the prior phase of the Electrical Transmission grid for the city known as the Grindstone Project. This project was completed in 2006 and essentially came from the north and east to cross Highway 63 and terminate at the Grindstone Electrical Substation with a future look to the west to complete the loop around the city as well as tying into various

Electrical Substations for redundancy and NERC compliance. Radial electrical lines have been constructed going in all directions from the Grindstone Substation. The health considerations for EMF were examined from the available medical journals and studies for the 2006 project. There was nothing to show that the Transmission Line would create an adverse health consideration. The surrounding land adjacent to the 2006 Transmission Line routing path has not had a decrease in property/land value but has done just the opposite. When you examine the County land records you see how the land has been developed for residential, commercial and industrial uses. Additionally, the existing property parcels have increased in value along the routing path.

2) As the Department moved ahead with the next phase which is Option A, once again the Department made an assessment of the potential health considerations for EMF to see if the medical literature, journals or studies were showing any different outcomes from more recent studies. The more recent studies did not indicate any difference. The same conclusions regarding land values would play out with the next phase. Property market conditions have been improving since 2012 with various other transmission lines being built throughout the city. Refer to the Staff Report to Council for the January 19, 2016 Public Hearing for additional documentation.

3) Given the circumstance of the delay, the board has in recent months independently reviewed the related medical literature for EMF impact, the land value impact and visual perspective impact of city transmission lines. Additional information has been presented to the Advisory Board regarding EMF in the Advisory Board's meeting minutes of December 9,2015 which are attached. The minutes also speak briefly to property values. Additional information/pictures of actual similar locations have been presented to the Advisory Board to specifically identify actual locations of residential, commercial, school and health facilities where 161 Kv transmission lines traverse within the cities of Nashville, TN, Jacksonville, Sarasota and Orlando, FL. A board member held a meeting with the Transmission Line Manager for Florida Power and Light to review their practices with the proposal in Columbia. Columbia's project approach as summarized in the Staff Report delivered at the January 19th public hearing is very similar to their project approach. The pictures can be found in the Advisory Board's minutes of May 4, 2016. As a comparison of before and after, it is more appealing to the eye to have all the existing electric distribution lines/communication cables put underground **as proposed** and see only the new Transmission lines and poles. The minutes are attached with pictures.

It has been brought to our attention that the Columbia Public School System purchased a piece of property in southeast Columbia that demonstrates that it is “**ok**” to locate an elementary school adjacent to an existing city owned 161 Kv transmission line that has an added feature of a 69 Kv transmission line underneath it that is owned by Boone Electric. The construction contract has been approved and the school is under construction. Residential subdivisions have been built around this transmission line with further proposed building in this location. See attached a land parcel display that was presented to the council in March of 2016. This transmission line (Grindstone Project) was constructed in the phase prior to Option A consideration.

The board has been in receipt of two scholarly papers written last spring semester (2016) by the “Honors Social Science Colloquium” at MU. They are entitled, “City of Columbia Transmission Line Project Recommendations” and “Health Consideration as Columbia, MO Pursues New Transmission Lines”. These papers are an independent confirmation of Option A. A copy of each paper is attached.

The Advisory Board is disheartened by the lack of advisory communication from the Mayor and Council regarding the Transmission Line Project. We are the council’s appointed citizens and have the expectation of being

advised with in such issues. Why were we not consulted as a transparent measure about the pursuant of Option E?

The Advisory Board feels that we have been left to deal with a long list of “Unintended Consequences” of your decision making. Please consider the following feedback from this list.

1. Our electric rate payers have been paying 3% more in their electrical bills for the last 15 months and nothing to show for it. More time will continue to accumulate. Some electric rate payers want a refund and the electric rates reduced back until a clear direction is decided. Interest keeps accumulating on the debt.
2. Our engineering consultant has been left holding the bag for this project. Do you realize the work force that must be commanded by the engineering consultant to execute a project like this? Where do you think they get work to replace this work while we are sitting on our hands?
3. All the costs associated with this project since inception, keep mounting without some clear direction. We have limited resources and no attention is being given to how these will be dealt with. Since the inception of this project, the staff cost has been in the hundreds of thousands of dollars and will continue to accumulate. Has the council budgeted the additional staff costs to fully execute this project as it stands now? Will we just write it off? Has

does enhance your long term working relationship with city staff.
4. We are still being challenged by the 68% voter approval of the bond election since Option A was the only consideration at the time of the vote. They are asking the question, “Will they get to have a referendum vote if another Option is considered?” Where’s the transparency? The voters gave you approval, trusted that you would issue the bonds and execute the project. We are not sure what thoughts they will have for a second run when the first one was not done according to their wishes.

Additionally, the Advisory board has continually incorporated non-transmission alternatives into the operation of the Electrical Department through the most recent update of the Electrical Integrated Resource Plan. These alternatives are targeted at managing several forms of distributed energy: energy efficiency programs, solar and Community Solar, demand response measures and peak shifting if possible and back up generation and possible inclusion of battery energy storage in the future. Additionally, the renewable energy portfolio has been increased.

The Advisory Board has been following the work of the Mayor’s Task Force for Infrastructure (MTFI) in regards to the Downtown Electric task. The following is a summary of the documented limited excess

capacity of the Downtown Electric system and their draft recommendation.

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 various 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.

The MTFI draft recommendation to the city council that the proposed Mill Creek Electrical Substation be built as originally designed and be connected by appropriate electrical transmission lines to benefit the downtown area directly as well have a side benefit to the city's entire electrical system.

1. The project is on the current Electrical System Capital Improvement Project funding list.
2. The "Administrative Delay" now in force should be re-evaluated for continuance until such time the Mill Creek Substation is on-line and able to feed the downtown area. This would relate only to the electrical downtown infrastructure as a part of the Administrative Delay.

The Advisory Board endorses the MTFI draft recommendation for the Downtown Electric to construct the Mill Creek Electrical Substation and should be built immediately. This recommendation was confirmed by unanimous vote at the August 31, 2006 meeting.

Another copy of the Staff Report dated January 19, 2016 is attached as additional reference material to be reviewed in its entirety to guide you in your decision making.

In summary, the causes for the delay in the

Transmission Project have been examined in light of health considerations for EMF, property values and visual perspective of the Transmission Line. With this in mind, three scenarios have been examined **1)** a review was conducted of the Transmission Project prior to the Transmission Project (Option A), **2)** a review of Transmission Project (Option A) and **3)** our own recent independent review looking on the Transmission Project (Option A). It is apparent that no new compelling information or data has been brought forward that would lead one to any different decision than has already been made to proceed with Option A.

The Advisory Board truly believes we can mutually and collectively do better.

Sincerely,

John T. Conway, PE
Chairman, Water & Light Advisory Board
APPA Academy Graduate, Public Power Governance Program

Cc: Advisory Board, Director of City Utilities, City Manager, Deputy City Manager, MTFI Chairman, Tribune

Attachments:
1) Advisory Board minutes of December 9, 2015
2) Advisory Board minutes of May 4, 2016 with attachments

3) Land Parcel exhibit for Vinyards Plat 2-A Revised Preliminary Plat
4) City of Columbia Transmission Line Project Recommendations (MU)
5) Health Considerations as Columbia, MO Pursues New Transmission Lines (MU)
6) Staff Report for Second Public Hearing on route selection for the Columbia Electric Transmission Line Project dated January 19, 2016