

Source:

Water & Light
Tad A. Johnsen

Agenda Item No. _____

FISCAL and VISION NOTES:

TO: City Council
FROM: City Manager and Staff
DATE: July 22, 2011
RE: Mill Creek Option B Route Study Report

City Fiscal Impact Enter all that apply:	
\$500,000	City's current net FY cost.
\$3,650,000	Amount of Funds Already appropriated
\$0	Amount of budget amendment needed
\$0	Estimated 2 yr net costs: One-time
\$0	Operating / On-going
Program Impact:	
N	New program/ agency (Y/N)
N	Duplicates/expands an existing program (Y/N)
N	Fiscal impact on any local political subdivision (Y/N)
Resources Required:	
N	Requires add'l FTE personnel? (Y/N)
N	Requires additional facilities? (Y/N)
N	Requires additional capital equipment? (Y/N)
Mandates:	
N	Federal or state mandated? (Y/N)
Vision Implementation Impact Enter Below All That Applies:	
Y	Vision Impact? (Y/N or if N, go no further)
Item 5.1	Primary Vision Statement, Goal, and/or Strategy Item#
Item #	Secondary Vision Statement, Goal, and/or Strategy Item#
Task #	FY10/FY11 Implementation Task#

EXECUTIVE SUMMARY:

Staff has prepared for Council consideration a report concerning line route options for "Option B" of the Mill Creek Substation Transmission Line Project. The routes presented in this report were identified through a route study conducted by the engineering firm Sega, Inc. of Overland Park, KS. The routes identified for "Option B" as well as the route evaluations from the "Option A" alignment studies will be presented at an upcoming interested parties meeting later this summer.

DISCUSSION:

At the November 22, 2010 Council work session, staff was directed to evaluate alternative transmission line routes to those presented in the original route alignment study. Routes identified in the original route selection study are now referred to as the "Option A" alignments. The intent of "Option A" alignment study was to connect 161 kV circuits to the Mill Creek substation from the Grindstone, Perche Creek, and McBaine substations. The intent of the alternatives in the "Option B" alignment study is to connect the Mill Creek substation at 69 kV along the existing 69 kV route from the Grindstone substation to the Hinkson Creek substation. "Option B" will place the Mill Creek substation in series with the 69 kV circuit from Grindstone to Hinkson Creek substations. In addition, "Option B" connects the McBaine substation to the Perche Creek substation via a 161 kV line routed along the south-western periphery of the city limits as per Council suggestion.

Sega, Inc. has identified route options for the two transmission lines required for "Option B". See Figure 1 - McBaine to Perche Creek 161 kV Line Route Options and Figure 2 - Grindstone to Mill Creek to Hinkson Creek 69 kV Route Options.

McBaine to Perche Creek 161 kV Line –

For the McBaine to Perche Creek 161 kV line, two major route options have been identified: the Red route and Green route. The Orange and Blue routes are identified as possible route variations. Through the Orange and Blue route variation corridors, the line route can alternate from either the Red or Green route.

The Red route is the longer and more rural of the two routes that run from McBaine to Perche Creek substations. It also involves a "double circuit" with the existing 161 kV line from the Overton substation in the far northern segment of the route that runs east-west into the Perche Creek substation. A "double circuited" line is one in which two different lines share the same

structures. It is often desirable to double circuit transmission lines as it allows two lines to share the same easement. However, double circuited transmission lines can present reliability issues by allowing for single contingency incidences (such as a car crash, lightning strike, or ice damage) to outage not one, but two 161 kV circuits. Because one of the goals of this project is to address the reliability of the City's 161 kV systems on the western-side of town, double circuiting the only two 161 kV lines feeding the Perche Creek substation is considered a less desirable option. If the Red route were used to connect the McBaine and Perche Creek substations, utilizing either the Blue or the Orange variations would avoid the double circuiting of the two 161 kV feeds into Perche Creek substation.

The Green route is the shorter of the two routes and follows the existing Scott Blvd. right-of-way along the periphery of the city limits. Utilizing this route would avoid double circuiting the two 161 kV feeds into Perche Creek substation entirely.

Grindstone to Mill Creek to Hinkson Creek 69 kV Line –

The Grindstone to Mill Creek and Mill Creek to Hinkson Creek lines will utilize the existing 69 kV easement to the maximum extent possible. New route construction will be necessary to divert the route from the existing 69 kV line in and out of the Mill Creek substation along one of the route options illustrated in Figure 2. The utilization of the 69 kV system at Mill Creek will require a re-construction (structures and conductors) of the entire existing 69 kV line between the Grindstone and Hinkson Creek substations in addition to the new construction of lines going in and out of the Mill Creek substation. This re-construction of the existing 69 kV line is necessary because larger conductors are required for the transfer of higher electrical loads at 69 kV. The weight of the larger conductors will necessitate the construction of new poles along the full length of the lines connecting Mill Creek to Grindstone and Hinkson Creek.

Many of the new route segments of the Grindstone to Mill Creek and the Mill Creek to Hinkson Creek lines shown in Figure 2 are double circuited due to the compact nature of this location. Double circuiting these lines would create reliability concerns as any contingency that causes an outage on either line would likely result in a complete power outage at the Mill Creek substation. This would result in a complete power failure of all distribution circuits tied to the Mill Creek substation.

The Red route double circuits every other route and the "possible route variation" route double circuits the Yellow and Green routes.

The routes for this circuit that do not include the utilization of double circuits are the Yellow or Green routes running from Grindstone to Mill Creek substation, and the Orange route running from Mill Creek to Hinkson Creek substation.

Project Timeline –

According to the timeline developed for this project and presented at the Council work session on February 21, 2011 (see Figure 3 – Time Line of Project) the next step is to hold public meetings with the interested parties before the end of summer. Water and Light will send letters of invitation to all parties previously informed of the project for "Option A" and to all property owners whose property line falls within 150 feet of the centerline of the routes identified in "Option B". This letter will inform the recipients that Water and Light is holding public meetings for the project, and will encourage them to attend the meetings to learn more about the project. The public meetings will also provide the public an opportunity to ask questions and submit formal feedback.

All feedback submitted to Water and Light will be utilized to weight the evaluation matrix, using the same procedure developed in the "Option A" analysis, so that the most desirable routes can be recognized. After the routes presented in "Option B" are evaluated, Water and Light will

present a report to Council this fall. This report will summarize findings of the route studies for both "Option A" and "Option B" and will present the alignment evaluations for each case.

After presenting the summary report, staff will hold a final selection Interested Party meeting presenting a final report to Council and seek Council direction to proceed with formal public hearings. This project is currently on schedule for conducting the final transmission line route selection public hearing in the winter of 2012.

FISCAL IMPACT:

The total appropriations requested for this project, including the proposed Mill Creek Substation and 161 and/or 69 kV system interconnections is \$26,325,000 of which \$3,650,000 has already been appropriated. Funding sources for the unappropriated portions of this project are from enterprise revenue or a future bond issue.

VISION IMPACT:

This project represents a well planned, proactive growth strategy in which infrastructure is developed that provides coordination among all potential stakeholders.

SUGGESTED COUNCIL ACTIONS:

No action is necessary by council. This report is for information only.

Cc: Water and Light Advisory Board
Water and Light Staff

Figure 1 - McBaine to Perche Creek 161 kV Line Route Options

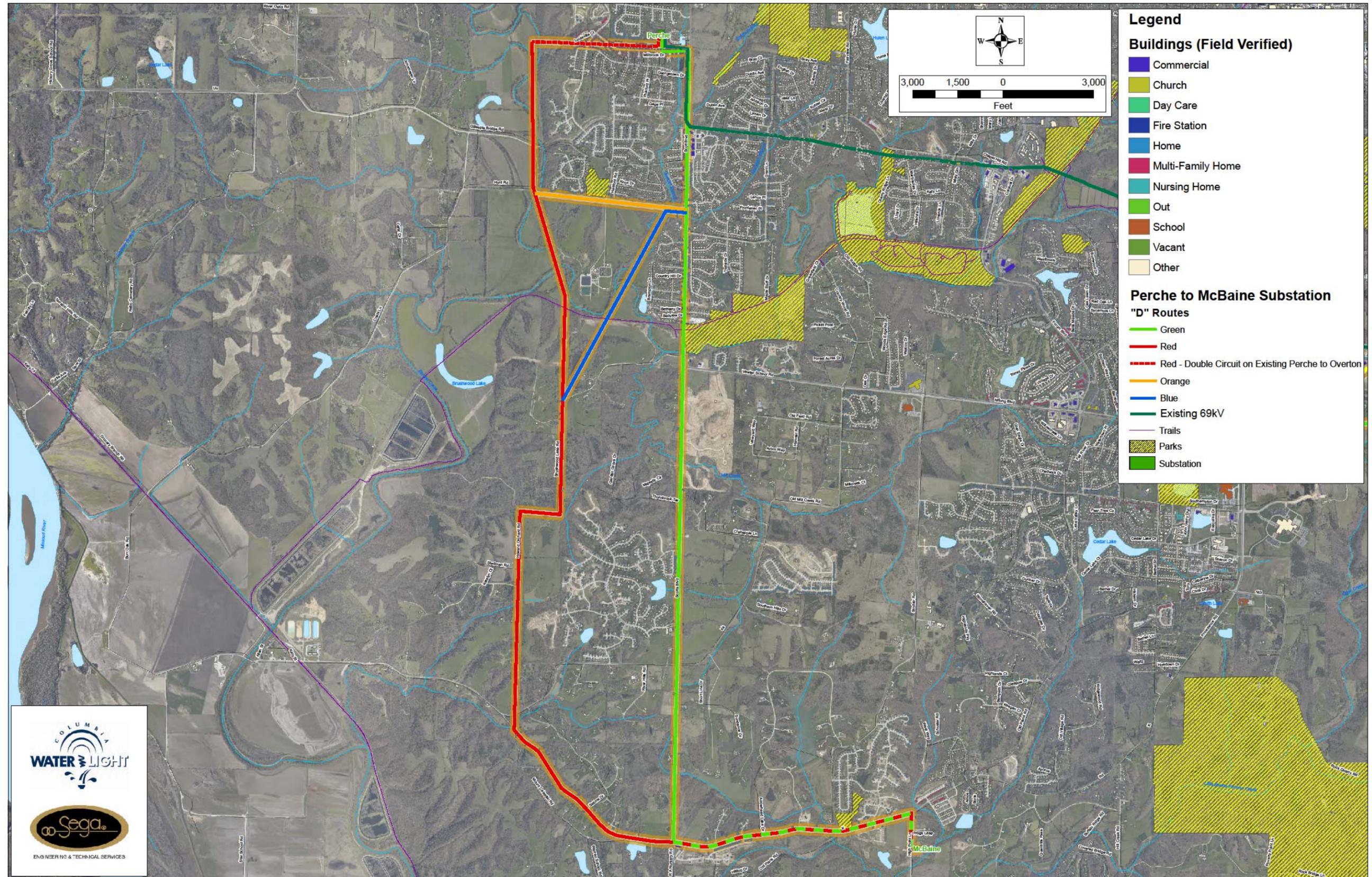


Figure 2 - Grindstone to Mill Creek to Hinkson Creek 69 kV Route Options



Figure 3 - Time Line of Project

CITY OF COLUMBIA WATER & LIGHT DEPARTMENT

Mill Creek Substation Transmission Line Routing Project Time Line

