Tysons Strawman Plan Text
Building Information Systems & Energy and Water Usage

1. Task Force Recommendations/Tysons Strawman Text

- Task Force recommends setting specific environmental goals
- Strawman contains plan language for providing for "smart green buildings" and/or provision of energy and water use data for buildings in Tysons.

2. Staff Perspectives on the Recommendation/Text

We understand the benefits of requesting energy and water usage information from developers and the importance of finding performance measurement methods for county initiatives. There aren't a lot of long-term data currently available on impact of various Green building methodologies on actual energy and water usage. The plan language could lead to the provision of data that will assist in future decision-making by developers and local governments and could potentially have a positive impact on infrastructure development in the county. We have made recommendations on specific language to Planning staff. However, there are constraints that need to be considered and discussed. Below is a discussion on what we have identified.

Purpose, Consequences and Responsible Agency
It would be helpful to define the purpose of gathering the data: Do we want to measure the effectiveness of promoting Green building methodologies specifically? Do we need macro data for energy and water use in Tysons as a whole to determine infrastructure investment needs? Do we want to fill a gap in information key to determining whether to build "Green" or not? Are we trying to meet a specific environmental goal? Will there be any consequences to developers if they do not meet their objectives? The answer to these questions will help determine implementation methods. For implementation, we need to determine which agency will gather and track the data over the long-term. There is no agency that has a mandate, mechanism, or resources in place to continue tracking the project once it is approved/built, and project bonds have been released.

Timing of Submissions
The time frames involved are an obstacle. There could be a significant lag between a proposed development under review with Zoning, or a plan approval by Building Plan Review, and the time needed to gather sufficient data to determine if energy and water have been conserved. A minimum of a year of a fully occupied building, under normal operations, would be needed to analyze actual use. Ideally, we would have several years' worth of data so that a particularly warm or cold year does not skew the data. During this time, the building may also have a new owner.

If the data is submitted on the design drawings, information on the building information system and designer's energy and water usage estimates could possibly no longer be available in Building Plan Review when data is submitted. Under the State's retention

schedule, building plans are kept on file for three years and then they are destroyed. The data will need to be captured in another electronic format.

Financial Impacts

County:

Funding will be needed for the following resources:

- A database to track information. Either a new database will need to be created or an existing one modified to track data.
- Staff time to determine baseline and potential new energy and water usage.
- Skilled staff to analyze the data. Staff will need to determine if the data submitted is what was proffered, whether it was based on a fully occupied building, in normal use, whether there were any other anomalies in the data, and ultimately to measure the aggregate changes.
- Staff to communicate with the Planning Commission, the proposed Tysons Implementation Group, DPZ, and DPWES staff on goals and implementation issues.

Industry:

Industry will also need to expend additional resources in staff and materials:

- Potential building design and installation costs if building information system (BIS) is installed.
- Staff time to determine baseline and proposed energy and water usage, create reports, track data, and submit to county.
- Other unforeseen costs. For example, developers/owners will need to purchase an additional water meter if they are relying on a BIS for water data. Existing meters do not have the capability to interface with BIS.

Changes to the Building Code

Additionally, in the near future, we may not be able to equate the savings exclusively to LEED or other such practices in Tysons. Current code is based on the 2006 International Energy Conservation Code. However, when we transition to the 2009 International Energy Conservation Code in roughly two years, energy and water usage comparisons could potentially be dramatically different. The 2009 code will be more stringent and closer to LEED certified level requirements. As the code becomes more energy and water efficient, LEED will most certainly become more stringent itself as time goes on. If our goal is a true calculation of savings based solely on county Green policy, staff will need to periodically compare the new LEED requirements versus new basic Code compliance to recalibrate our requirements and estimates.

Variability in Quality of Construction

Some builders use better quality equipment even if they are not trying to be LEED-certified. This can make the estimated energy savings more difficult; estimates may be based on different baselines from builder to builder.

Difficulty in Predicting Energy and Water Usage
It is not recommended that the plan language be written to "ensure" remediation if a building or development does not meet its energy and water savings goals— in their study for the USGBC, the New Buildings Institute reported significant energy savings for LEED buildings in the aggregate, but sometimes found inconsistent results on a building by building basis. Actual levels of energy efficiency are hard to predict --and sometimes predictions are difficult to attain. Building operations alone can have a significant impact on energy and water usage; a poorly-designed building that is managed well can be more efficient than a well-designed building managed poorly.

Additional research is needed on measuring energy and water savings for various building construction types and various types of businesses for LEED and other Green building methods. Because of this lack of sufficient research, despite the difficulty, it might be useful to have this energy and water data collected, though we should have further discussion on whether that is the county's role.

3. <u>Staff Recommendation</u>

- Support language that is not stringent, along the lines of the following:

In addition, provision of data regarding energy and water use in buildings that include green building design practices should be encouraged. Such monitoring efforts should be designed to allow for meaningful comparisons between actual energy and water usage and levels of usage that would be expected absent the application of green building design practices.

- There needs to be further discussions on the purpose and goals of the study and on the implementation method.
- The level of staffing and other resources needed to support the study need to be determined.
- The agency or entity in which staff will reside needs to be determined.