Subject: Re: development goals
From: Garrick Maine <gmaine@flad.com>
Date: Thu, 04 Dec 2008 17:35:20 -0600
To: Sherrie Gruder <gruder@epd.engr.wisc.edu>

Sherrie,
Sounds like an interesting session. Sorry to miss this one. I saw an article in Tuesday's newspaper on this development and figured it would wind before this committee sooner or later. As far as my reaction to the proposed goals are concerned I believe Goal 1 will be difficult to achieve but that Goals 2,3 and 4 are achievable. All of these are modest ambitions when viewed in light of our discussions of The Natural Step but certainly a step forward from the norm. Of most interest to me--and perhaps the most significant achievement that could come from this--is what metrics we'll develop to measure this development's success. Here some of my thoughts for discussion:

Goal 1: Reduce automobile dependence by 25%
How will we measure the plan's success in reducing dependence on the private automobile? LEED-ND offers some surrogates that could be used used to judge the plan's potential success at reducing the dependence on cars--proximity to bus routes, bike networks, schools, and non-residential development; reduced space allocation for surface parking; diversity of land use (mixed use); increased density (dwelling per acre for residential, Floor Area Ratio (FAR) for non-residential, street grid density)--but no means to actually quantify their impact. One credit, Smart Location & Linkage Credit 4, does award points based on the use of an annual Vehicle Miles Traveled (VMT) household survey. Its baseline is a demonstration of a 20% reduction as compared to the average of the metropolitan region (so 25% is pretty modest by this metric). Its also worth debating whether the baseline should be the entire metro region or perhaps limited to a typical outlying suburban neighborhood (older downtown neighborhoods with large student populations would skew the average). And then there's the question of how ambitious you can afford to be in establishing the baseline survey; its much easier and less costly to survey a neighborhood than it is an entire city. Perhaps we could invite someone to a future meeting who could enlighten us on details and methodologies of traffic surveys and help us develop an appropriate metric.

Goal 2: Reduce household fossil-fuel based energy consumption by 25%
The baseline for this goal is "current city-wide household levels." This includes a lot of older homes whose performance is well below the current energy code (IECC 2006). Compare this against Mazaria's 2030 Challenge target of 60% better than the regional average by 2010 and this goal is again seen as very modest. Under LEED for Homes a 25% reduction in annual energy use (using the ***2004 IECC*** as its baseline) is worth just 6 of possible 34 points.
A major issue here, as with Goal 1 above, is how to measure our success. It would be impractical to require energy modeling for each home but there are freeware programs like the Canadian RESNET that could be used. All of these, however, use a national energy code as a baseline for compliance. LEED for Homes relies on the EPA's HERS rating method. If we do agree to use a city average as a baseline in lieu of a current energy code, we'll need to work with MGE to establish just what that city average is. I was unable to locate a copy of the charts Kathy distributed to committee members some time ago. MGE's website does allow homeowners to calculate their individual home energy use in Btu/ft2-HDD and separate gas and electric use. It also allows homeowners to compare their energy use with other Madison area homes using MGE's own rating system. We'd have to work with MGE to develop an acceptable "average Madison home" and normalize it for size and household population. We'll likely need more than one base case as it's certain that there will be several housing types

represented in the new neighborhood development. Using this approach does have its limitations of course. The web site can't predict energy use, only measure it after the fact. And it can't distinguish the energy source so it wouldn't know the difference between a kWh of site generated renewable electricity and a kWh of fossil fuel generated electricity.

Goal 3: Reduce household per capita water consumption by 25%
Like Goal 2 above, the baseline is "current city-wide" per capita level. Based on the recent presentation of the City's Water Conservation and Sustainability Plan, we know that daily household water use is 184 gallons/day. At 2.5 persons/household the per capita daily use is 73 gallons/day. The water utility's own goal is a city-wide 20% reduction in per capita use by 2010. The 25% reduction would seem to be in harmony with this. There is a seasonal adjustment to household water use that has to be made to account for increased outdoor water use in the summer months. The report did not distinguish between indoor and outdoor water use so I'm unclear as to the magnitude of this swing. Using the water calculator we've developed for indoor plumbing fixtures and ignoring outdoor use, it's relatively easy to achieve a +25% water savings. Measuring metered water use is simple but wouldn't tell the whole story. We'd need to perform some form of household survey to determine what the means of the reduction are.

Goal 4: 25% infiltration of storm water
The underlying question for me is 'What is the infiltration rate of a typical suburban lot?' This goal seeks neither a reduction in stormwater runoff volume nor an increase in stormwater retention as compared against a baseline. As written it simply seeks a local 25% infiltration rate. I asked a couple of our staff landscape architects what the infiltration rate of a typical suburban site would be. Their response was 'What's typical?' The problem with my request was I hadn't defined lot size or lot coverage in order to estimate the percentage of open vegetated area. If this goal is to be met at the neighborhood scale, as opposed to individual lots, then success would seem certain. With a nod to The Natural Step, I'd suggest a goal of no net increase in stormwater runoff for the entire post-development site and charge the developer with the task of creating a comprehensive stormwater management plan with additional encouragement to use stormwater management practices that locally recharge the groundwater. With responsibility placed at the feet of the developer the plan is measurable.

Good luck with the meeting. Hope I've added some meat for discussion.
Garrick

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