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**MAG Dark Sky Stakeholders Group (DSSG)
Draft Meeting Notes**

November 16, 2010

Nathan Pryor welcomed the group to the November DSSG meeting. Introductions were made.

Nathan Pryor discussed the purpose of the Stakeholders Group. He said it was to collect information on outdoor light pollution, review best practices in lighting codes, and develop a draft Pattern Outdoor Lighting Code (POLC) for MAG member agencies.

Nathan Pryor provided background on the Dark Sky initiative.

Date	Activity
August 2008	MAG meets with a member of the International Dark Sky Association.
October 2008	Dr. Buell Januzzi, Past Director of the Kitt Peak Observatory, provided a report to the MAG Management Committee.
December 2008	Dr. Januzzi gave the same presentation to the MAG Regional Council.
January 2009	MAG Management Committee approved convening a Dark Sky Stakeholders Group (DSSG). MAG member agencies requested to revisit the adequacy and enforcement of their respective lighting ordinances in an effort to improve visibility, save energy and protect dark skies. Jurisdictional managers were requested to provide names of individuals in their jurisdictions to participate in the Stakeholders Group.
March 2009 to February 2010	DSSG collected information on outdoor light pollution, reviewed best practices in lighting codes, and developed a draft Pattern Outdoor Lighting Code (POLC).
July 2010	Held Dark Sky Workshop to gather comments from external stakeholders on the draft POLC.
October 2010	Updated MAG Management Committee.
November 2010	Continue working with external stakeholders.

Elizabeth Alvarez gave a presentation representing the astronomy community and their interest in good lighting and using light wisely. Chris Luginbuhl gave a presentation highlighting what the POLC is about. Amanda Wright, on behalf of the Phoenix Chamber Economic Development Committee provided comments. Phoenix Chamber wants more information, what impact does POLC have on name recognition on buildings, would business have incentive to move to different jurisdiction based on code implementation, what is the impact of uplighting at resorts on landscape design, impact on existing signage, etc. They asked that an economic impact analysis be done. James Carpentier, Arizona Sign Association (ASA) provided comments. He said the ASA has concerns with sign color, brightness, and curfew as written in the POLC. He also noted that it

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would be beneficial to identify the difference between on premise and off premise signs and separate the two. Would it be possible for this code exempt on-premise signage? He said he would like the economic concerns addressed.

Nathan Pryor said MAG does not adopt the code. He said member agencies will be encouraged to adopt the POLC either in whole or in part.

Businesses open 24 hours such as ATMs and Internet companies do not have a sign curfew. The code can add more clear language so this is understood.

Signs have sideways directed light which astronomers are sensitive to. Chris Luginbuhl explained that opaque and dark background signs produce a lot less light pollution than white background signs. Fred Baker of Apache Junction asked if there is empirical data that show how much light pollution comes from signs.

Thomas Ritz asked if MAG has looked at the inclusion of street lights in the MAG Uniform Standard Specifications and Details for Public Works Construction document. Street lights are not a component of this document. Section 3.5 of the MAG POLC addresses public roadways and states that lighting for public roadways and pedestrian lighting must comply with the code, except the lumens cap of Section 4.2. Typically the municipality's Street or Transportation Department sets and implements street lighting standards.

Don Happ, lighting designer and city of Scottsdale consultant for many years, complemented the group for creating a complete and detailed POLC. He said it has too many limitations as currently written and will probably not be adopted by MAG member agencies. Don Happ made the following suggestions.

Don Happ suggested changing 25 percent to 50 percent in Section 3 of the draft POLC to meet building code requirements.

Mr. Happ said in Table 4.1, he thinks 2000 lumens is extremely low. He said the POLC may need to have an exception for churches as they tend to uplift their steeple and prohibiting them from doing this may result in a legal issue. He said the POLC needs to address linear fluorescent fixtures that light monument walls as they are being used more often by government agencies. He said Section 4.2 lumens/acre may want to be more closely related to industry standards in IES and IDA model lighting ordinance. Mr. Happ asked how the POLC complements the International Energy Conservation Code (IECC) which is part of the building code. He said 150,000 lumens/acre is what is being used in north Scottsdale and that is considered incredibly dark. He said parking garages, regional malls, service stations, and city facilities in high vandalism areas will not be able to conform to this code. He suggested changing 4200K to 4300K in section 4.3 because a lot of the LEDs are coming out in that range. He said HPS light bulbs are not focused on anymore as it is a mature technology, metal halide lights are the new focus. He said Section 4.7, 30 minute curfew is a good thing, but most cities have a one hour curfew. He suggested referencing the IECC to bring down lighting to security level lighting at close of business.

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Don Happ suggested rewording Section 6.1 recreational lighting to address little league requirements. He also suggested changing Section 6.2F, Certification, to allow the designation of "LC" which is lighting designer. He said Section 6.3C of 60 lumens/square foot is too low. He suggested a one hour curfew for car dealerships frontage row in Section 6.3D. He suggested allowing search lights with a permit in Section 9.2. The same can be done with track lights.

Dan Heim supports the 100 nit limit with new LED signs. The LED sign at Anthem outlet mall is a concern and he said this light can be ramped down at night. Power consumption scales linearly with brightness level and he suggested energy savings should be a component of the POLC.

Richard Travis asked if the group discussed the cost to retrofit lights in shopping centers. Nathan Pryor responded that there is no requirement to retrofit existing equipment and municipalities can replace existing equipment as it ages. He asked if there was any cost analysis of how much it would cost when equipment reaches end of life. Chris Luginbuhl said he is uncertain how such an economic analysis can be done.

Richard Hubbard asked if the POLC is necessary if each jurisdiction is going to create their own outdoor lighting code. The Apache Junction representative said the POLC will assist their jurisdiction.

What happens when light crosses jurisdictions. Most cities look for light to not trespass property lines.

Is there a benchmark or goal that is trying to be met with light levels in the POLC. Liz Alvarez responded that the goals are to use light levels needed for the task, turn lights off when not needed, and pay attention to the color issues, and fixture and lamp efficiency.

It might be easier to endorse the IES/IDA model lighting ordinance. It is not certain when the IES/IDA model ordinance will be approved.

It was suggested that the POLC consider a third lighting zone (rural, suburban and urban). Suburban is where urban and rural touch.

James Truman, farmer in the city of Surprise, is close to well lit sign on auto dealership property. He said light can be controlled with fully shielded lights that would direct light where it is needed. He encouraged the group to consider aggressive shielding as that used in the Verrado development in Buckeye. The direction of how light is emitted is important to consider.

Mike Sills Trausch encouraged all attendees to continue to attend meetings and participate through this process in order to resolve concerns and continue to compromise.

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MAG staff said the next meeting is set for December 14, 2010 at 1:30pm in the MAG Saguaro room. Future meetings are scheduled for third Tuesday of every month at 1:30pm.

MAG staff requested to please let them know of other stakeholders not represented that should be at the table. MAG is sensitive and aware of business issues and has formed an Economic Development Committee (EDC). MAG is encouraged to see everyone here and hopes that all participants will continue to participate.