

DRAFT

Dark Sky Stakeholders Group
March 3, 2009

Draft Meeting Notes

Background

Heidi Pahl discussed the background and described the purpose of the Dark Sky Stakeholders Group (DSSG). She said that in the summer of 2008, the MAG Executive Director was approached by a member of the International Dark Sky Association (IDA) with a request to make a presentation to all MAG member agencies on the growing outdoor light pollution in the MAG region. The IDA saw MAG as a more efficient way to reach many jurisdictions. They offered staff from the astronomy community to help MAG form a stakeholders group and create a model dark sky ordinance.

In August 2008, several members of the astronomy community attended the Planners Stakeholders Group (PSG) meeting to discuss outdoor light pollution.

In October 2008, Dr. Buell Januzzi, Director of the Kitt Peak National Observatory, provided a report to the MAG Management Committee about issues related to outdoor light pollution in Maricopa County. He explained that outdoor light pollution creates a significant waste of electricity and money, and degrades the visibility of our night skies. This affects the world-class observatories located in the state. During the presentation, the counties, municipalities and Tribal Nations were requested to consider revisiting the adequacy and enforcement of their respective lighting ordinances in an effort to provide quality lighting to improve visibility, save energy, and protect dark skies.

In December 2008, Dr. Januzzi gave the same presentation to MAG Regional Council and received positive feedback.

On January 14, 2009, the MAG Management Committee approved convening a Dark Sky Stakeholders Group. A memo was sent to the agency manager alerting them of the first meeting and encouraging them to send staff.

Purpose

Heidi Pahl explained the purpose of the Stakeholders Group as collecting information on outdoor light pollution, reviewing best practices in lighting codes, and developing a model Dark Sky ordinance.

She said the meeting topics of this Stakeholders Group may vary, which could provide an opportunity for staff from various Departments such as Community Planning, Code Development and Enforcement, or Intergovernmental Relations to attend these meetings.

She said MAG understands that these are difficult financial times for the MAG member agencies. We hope that this Stakeholders Group, assisted by the astronomy community, can identify cost saving technology that can assist member agencies in the future.

DRAFT

Heidi Pahl provided a draft general outline of the upcoming DSSG meetings. She said these are subject to change. They provide a starting point.

Meeting 1

Setting the stage

Background: National, State, Local information

Identify purpose and tasks of stakeholders group

Information sharing and discussion

Meeting 2

Economic development, code discussion on lighting ordinances

Best practices from other local governments

Review of draft Model Lighting Ordinance (MLO)

Discuss lighting and crime

Meeting 3

Create/review MLO

Meeting 4

Finalize MLO

James Truman, a member of the public and farmer from the city of Surprise, gave a PowerPoint presentation on the impacts of outdoor light pollution. Mr. Truman explained his frustration with glare from over lit signs and lack of proper shielding on the lights in residential and commercial areas. He suggested possible solutions to prevent light trespass.

Dan Brocious, Public Information Officer (PIO) for the Smithsonian Institution's Whipple Observatory at Mount Hopkins, gave a presentation on outdoor light pollution. Liz Alvarez, Assistant to the Director of the Kitt Peak National Observatory and Chris Luginbuhl from the United States Naval Observatory Flagstaff Station, assisted Dan Brocious in responding to questions.

Comments and Questions

Tempe asked what the biggest light pollution violator's are in Tempe. (ie. sports field lighting and construction lighting). Tempe said that once the problem areas are identified they can target those projects that would have the biggest impact to reduce outdoor light pollution. They asked for examples of aesthetic lighting to draw attention to buildings in downtown Tempe. They asked how this be accomplished without trespass into the sky. They asked if there are any best practices.

Chris Luginbuhl said the biggest light pollution violators are sports lighting and parking lot lighting, especially parking lots built in the last 5-10 years.

DRAFT

Dan Brocious said many architectural effects can be accomplished, such as building washing with lamps mounted high and light shining down. Another question to consider is what the surrounding light is doing. Halo lighting is effective. Landscape lighting (lighting a tree from the bottom up) can also be accomplished with LED rope lighting, pole lighting, and paint brush lighting.

Mesa asked what the requirements are for lighting arterials and intersections. They have an issue in East Mesa and asked if traffic engineers have worked with the Dark Sky staff to understand the true safety standards.

Dan Brocious said an illumination agency establishes light standards to determine what is safe for street lighting. Municipal lighting of streets is not bound by the municipal lighting code but the traffic engineers can choose to comply with the municipal lighting code. He said ADOT has standards. He noted that when the eye has to adjust from bright light to low light it is difficult (e.g. from well lit gas station to street). California has some stretches of freeway that it does not light and California found they have no less accidents due to lack of lighting in these areas.

Liz Alvarez suggested to use light for the task, direct it where you need it, only have it on when you need it, think about the color of light. Sustainable practices in our communities are encouraged. Lighting designers and engineers are starting to see more automation where controls automatically adjust for periods of higher use or busy intersections. These automation practices are not common in the US yet.

James Truman mentioned that some street lighting has shields not approved by the power company. He said this is problematic when a city approves a development, a developer installs approved shields on street lights, and APS takes down shields because they do not approve the shield. APS maintains the street lights.

Chris Luginbuhl explained that the Flagstaff ordinance has standards for shielding that are better applied than most. He said there is a difference between writing a technically accurate code, and a code that actually works. Keep the code easy to implement. Lumens/acre cap is used in the Flagstaff ordinance. Flagstaff does not have a lot of over-lighting. Flagstaff had a huge education campaign talking about what they valued about the night-time environment. Flagstaff uses Low Pressure Sodium (LPS) street lights. Flagstaff has a strong requirement for LPS. There are also High Pressure Sodium (HPS) lights, white light, and LED as newer technologies which have different impacts on visibility and efficiency.

Pima County has adopted a similar code to Flagstaff with higher values and they have worked well because they are simply written and easily enforced.

Buckeye is updating their town code and including a lighting code. Buckeye asked if there is a relationship with the Dark Sky Association and entities like APS. Liz Alvarez said she was not aware if the local section of IDA has approached APS specifically. She said power companies can be allies in educating communities. Open communication with

DRAFT

power companies, customers, real estate developers, municipal staff, and IDA staff is important.

Glendale said it is easiest to control light at the source. It is not necessary to address the reflection as it is minimal. It is important to consider the control, the amount, and the color of the light.

Dan Brocious shared the URL for the outdoor lighting code handbook. This handbook is not a prescriptive code. He said sign code and lighting codes need to work together.

Glendale asked if the IDA is interested in reducing the number of exemptions in the local lighting codes or the state lighting code. Dan Brocious said as long as over-lighting is eliminated and a community standard exists for lighting, such as a lumens cap, then he is not concerned with the number of exemptions.

Glendale asked if there is a best practices standard for areas east of the Mississippi. Dan Brocious commented that a pattern code is available and the elements you plug into it are what make it work for your community to encourage good lighting. He said the astronomy community cannot dictate number of lumens/acre but can assist in updating lighting codes and can help to make lighting codes consistent across the region. This is not a one size fits all approach. The astronomy community can provide the consequences of different choices and provide general guidelines. Communities can reference the Handbook.

Glendale asked if wattage or foot candle can be used as a unit of measurement. Dan Brocious explained that lumens give a budget and lumens are on every manufacturers lighting package. So many lumens/so many fixtures is used by plans examiners.

Glendale has a comprehensive street lighting code and they have noticed some differences between the state code and city code. Glendale said the Dark Sky Stakeholders Group might have an opportunity to reconcile terminology for what best suits this area. Glendale has Remote Operations and Asset Management (ROAM) for monitoring street lights from a remote device.

New technologies of lights such as compact fluorescents need to be explored.

Dan Brocious said there is an outdoor lighting code committee in Tucson and everyone who is interested comes to this committee so that issues get thrashed out in this committee before getting to the Planning and Zoning Committee or City Council.

Liz Alvarez said that safety, security, task and aesthetics are important considerations for lighting codes.

Queen Creek said they have an ordinance pertaining to lighting.

DRAFT

Gilbert asked if there are good examples of a lumens cap/acre, so that city staff and/or elected officials can visit these sites prior to adopting or changing local lighting codes. Reasonable and sensible lighting code is important. IKEA parking lot in Tempe is a good example.

Avondale said they are reviewing their entire zoning ordinance which contains a section on lighting. Avondale is looking for input on how to handle illuminated signs such as pylon signs and the video related technology for these signs. Avondale has a lot of car dealerships along the I10. The astronomy community explained that this is a new issue. There is a way to mitigate the issues of light trespass from LED signs. LEDs have a night setting which will save energy and reduce light trespass but someone has to change the setting to the night setting. The measurement of output from one of these signs is called NITS. The astronomy community believes these signs should be kept to 100 nits at night. Outdoor LCD signs are another technology coming to this area and the problem is that there is a lot of trespass from these signs. Dan Brocious mentioned an article about changing an old wooden billboard in Los Angeles for an electronic billboard and citizens complaining about the light trespass.

Fountain Hills said they have no street lights except for at intersections with stop lights. They recently implemented CFLs, they use wattage, and banned mercury vapor. Fountain Hills asked for assistance on how to educate its citizens on the impacts of residential lighting. How do you measure glare from light? IDA is working on this, they use a glare-o-metric to measure glare.

Glendale asked if a curfew for outdoor LCD or LED signs makes sense. Dan Brocious said a curfew is implemented in areas near the observatories. He mentioned the political trade off. He said the curfew is implemented for energy savings and in turn cost savings. He said businesses may need to experiment with dimming their lights during the night time to determine if they are truly missing customers. It is better to have good fixtures than a curfew.

Discuss lighting levels at next meeting.