

# Mount Diablo Astronomical Society

## Diablo Moon Watch

October 2012

### GENERAL MEETING

## Tuesday October 23, 2012 The Sutter's Mill Meteorite Fall

By Dr. Peter Jenniskens

Doors open at 6:45 p.m.  
Concord Police Association Facility  
5060 Avila Road, Concord

**On April 22, 2012, a 3 meter sized asteroid crashed in Earth's atmosphere over the Sierra Nevada mountains in California.**

The meteor fell near Sutter's Mill, the site of the gold discovery that set off the California Gold Rush. Meteorites are still being found in the area and are of a rare carbonaceous chondrite type. Meteor astronomer Peter Jenniskens was one of the first on the scene, and will describe what to look for, how to search and what has been found so far.

Dr. Peter Jenniskens is a Research Scientist with the Carl Sagan Center at the SETI Institute and works on mission projects at NASA/Ames Research Center in Moffett Field, California, and on research topics that relate to interstellar and interplanetary matter.

Jenniskens is an expert on meteor showers, and is known for identifying the parent body of the Quadrantid shower: a minor planet called 2003 EH1. The main belt



asteroid 1999 TY224 has also been named (42981) "Jenniskens" after him. He is the Principal Investigator of ASIMA - the Asteroid Impact Analyzer, a proposed satellite mission (2014-2016) to measure the carbon

content of meteors from space and study the diversity of comets and asteroids.

**Ice:** His work at the Space Science Electron Microscopy Lab has led to the discovery that

unusual forms of water ice play an important role in astrophysics.

**DIBs:** His astronomical observations of Diffuse Interstellar Bands in the visual and near-infrared absorption spectra of interstellar matter, in collaboration with F-X. Desert, provided the first overall view of the Diffuse Interstellar Band spectrum.

**NEW LOCATION**

**As of January 2013 onward, our regular monthly society meeting nights are moving from the Concord Police Academy to the Lindsay Wildlife Museum in Walnut Creek at the usual day and time every month.**

**Please read for more details in the President's Corner page 3.**

### WHAT'S UP THE "BIG BANG" THEORY

by Moon

Fellow club members. . . I will be introducing you to some new "names and faces" in the field(s) of Astronomy, Astrophysics and Space Engineering. I've created a short video of 10 minutes for your viewing enjoyment. My hope is to broaden your "Astronomical Horizon!"

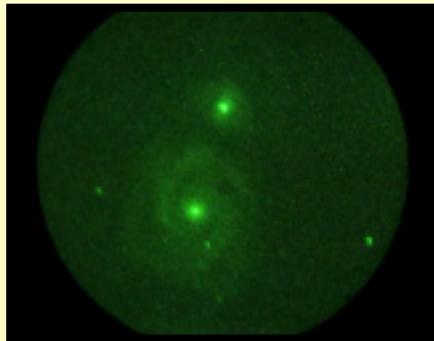
# PRESIDENT'S CORNER Intensified Astronomy Outreach

by Chris Ford

*Recently, I have been exploring astronomy outreach using image intensifier eyepieces to show "faint fuzzies" to the public at a high degree of detail and clarity.*

The combination of electronic image intensifiers and amateur telescopes is not new of course and products such as the Collins I3 or the simpler Meade electronic eyepiece have been available for some years. When you think of the phrase "image intensifier" you may think of a bright grainy green image that sparkles (or scintillates) as in a set of night vision goggles, however given the recent evolution of this technology, images of considerably higher quality are now quite achievable.

As an unashamed gear-head when it comes to experimenting with astronomy equipment, when I leant about the Micro IIE image intensifier I just had to try one out. Image intensifiers of this calibre are primarily designed for military purposes and as such come with restrictions on their sale to non-citizens and their resale. The MX-10160A/AVS-6 aviation grade intensifier



*The stereotypical image of the view through an image intensifier.*

that I recently acquired is such a device that is just at home mounted on the helmet of a special forces operative as it is on the end of a telescope. However, rather than present a grainy scintillating image, this device shows how much the state of the art in image intensification has now improved. The view through the eyepiece is

smooth, precise, and clear, and though the raw image is still a dark green, the Micro IIE comes with an amber neutralizing filter for the eyepiece that transforms the whole image into a pleasing dark yet contrasty greyscale and eliminates the excessive brightness that can ruin night vision in other electronic eyepieces. The view is very much like that which you enjoy through a typical optical eyepiece in the 12mm range, but just a bit greyer, but not in any aesthetically unpleasing sense. The amount of detail and brightness the intensifier can bring out more than compensates.

Frustratingly for the purposes of this Presidents Corner, it is actually very hard to describe in words and pictures what the actual viewing experience is like. It is similar to the manner in which a picture of a globular cluster can never convey the "fine sugary diamond dust" view that you can see with your own eyes. However this device is a standard part of my eyepiece case and I look forwards to showing it in action at various society events.

***As basically a (real time) photographic device, the faster the focal ratio of the the telescope optics, the more efficiently the Micro IIE intensifier behaves.***

In fact the increasingly photographically fast optics that are becoming available in the amateur equipment market are a perfect match for these devices. But why is a faster focal ratio so important,



*The Micro IIE intensifier from the eyepiece end with amber neutralizing filter and eyecup.*

## Intensified Astronomy Outreach *(Continued from the previous page)*

not only for image intensifiers, but for other astronomical photographic devices such as Mallincam's, CCD cameras, and DSLR's? Simply, each traditional f-number (or f-stop) that you increment, halves the light intensity from the previous f-number resulting in a darker image. Doubling the f-number will decrease your exposure factor by a factor of four. Or put another way, to maintain the same level of exposure if you double the f-number you need to expose four times longer. Therefore an F/4 telescope will expose an image much faster than an F/8 telescope. This big difference means everything for public outreach because the faster the telescope, the faster the turnaround is in rapidly presenting bright detailed images to the pub-

lic through any imaging device. This is particularly true for an image intensifier eyepiece which is essentially a real-time camera that requires maximal illumination. Most telescopes with faster optics such as an F/6 refractor or most Dobsonian's in the F/3 to F/5 range will perform quite efficiently, and with a focal reducer the intensifier works more efficiently still.

***Essentially the image intensifier has the pseudo effect of increasing the apparent aperture of your telescope by two or three times.***

Using the Micro IIE means one can see the central star of the M57 ring nebula with a 5" refractor, something that visually is usually hard to do under 14" and with excellent seeing. Likewise a 24" telescope starts to perform like a 60" or more in brightness, if not in angular resolution.

Not all visual targets are suitable for

these devices however. Low surface brightness objects that are strong in blue light are very hard to see. I pointed my telescope at the flat on M101 galaxy for example and could not see a thing. However looking at the edge on galaxy NGC 891 revealed a beautiful view of the dust lanes of this picturesque object. Likewise planets and compact bright objects such as double stars will over-saturate the intensifier. The real sweet spot lies in globular clusters, compact galaxies, planetary nebulae, and other objects that are not too low in surface brightness but not too intense either.

I have yet to experiment with a hydrogen alpha filter that from the comments of other observers who have done so say is a particular sweet spot for the Micro IIE when viewing faint nebulae. Likewise undertaking image intensified astrophotography is another potential application, and I will report as I experiment further. This is a fascinating device!

*Chris Ford*



*The adaptation for any telescope is simple.*

## Why is the monthly MDAS meeting location moving?

***As first highlighted in September's Moonwatch, from January 2013 onwards the MDAS will be moving its regular monthly meeting location from the Concord Police Academy to the Lindsay Wildlife Museum in Walnut Creek.***

The reason is simply that our usual Tuesday evening slot is no longer available, and though the board considered alternative evenings, it was felt that the existing Tuesday meeting time is so well estab-

lished that it would present difficulties to many members if we were to change it.

By fortunate coincidence the Lindsay Wildlife Museum has offered their facilities for our meetings, and they really are an excellent fit for our society. The Lindsay is a little more central for many members, the nature and science connections are obvious, and we will likely pick up some additional members from the greater exposure that the society receives. Also the Lindsay will set up the chairs and

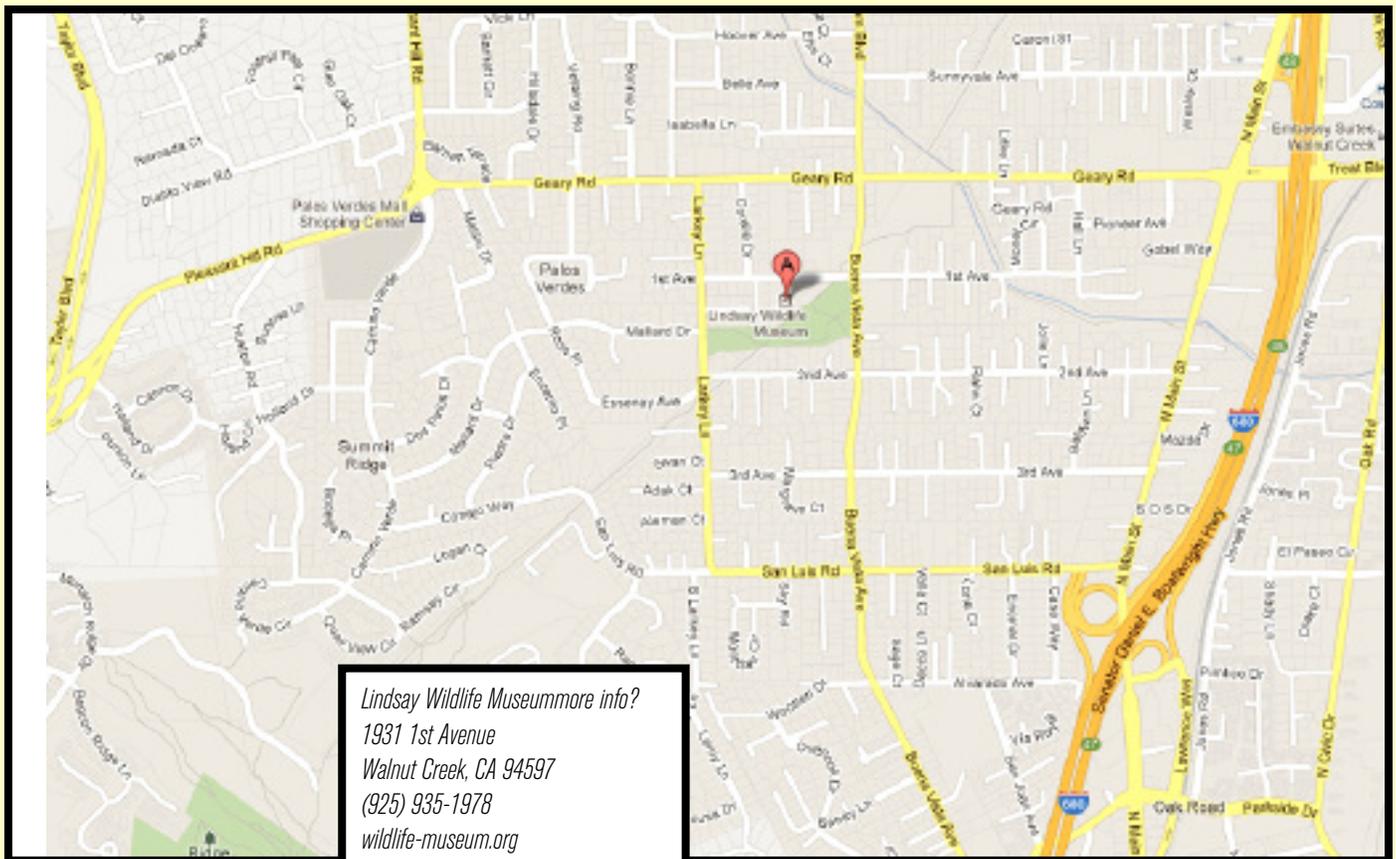
## Why is the monthly MDAS meeting location moving? *(Continued from the previous page)*

tables for us beforehand eliminating the need for members to arrive early to help setup, and there is plenty of parking in both the museums upper and lower lots, on the street, and at the adjacent Larkey's park.

So let me issue the first in a series of reminders to all members NOT to turn up at the Concord Police Academy for our January meeting! The Lindsay Wildlife museum will be our new location going forwards, they are very happy to have us, and an

excellent location it is! For your advance planning, here is a map of the new location in Walnut Creek just off the 680:

*Chris Ford*

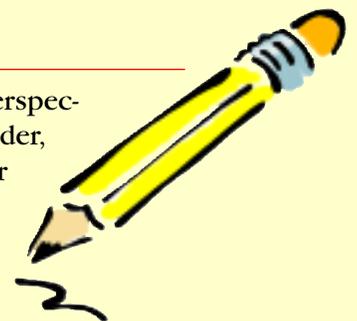


## Writers Wanted

We are always looking for new articles and content. If you have astronomical perspectives or experiences to share with your fellow members that you would us to consider, please feel free to contact me Chris ([cford81@comcast.net](mailto:cford81@comcast.net)) or our newsletter editor Vianney. ([veloroute@hotmail.com](mailto:veloroute@hotmail.com))

Clear skies!

*Chris and Vianney*



# Washington DC and Astronomy

By Nathaneil Bates

***A while ago I gave a "What's Up" talk on Benjamin Banneker and the alleged mystery of astronomical symbolism in Washington DC.***

In the talk, I related the claim made by some historians that Benjamin Banneker remembered the plans for Washington DC after original city planner



Benjamin Banneker

Pierre L'Enfant stormed away from having anything to do with designing the nation's capital. Benjamin Banneker, a self-taught free Black astronomer and mathematician, purportedly had a photographic memory that saved the day. Banneker remembered the plans and then continued to build the city. These plans are alleged to have incorporated astronomical symbolism that made our nation's capital the "city of the stars." I promised that I would say more about this in an article for the newsletter, especially about the claim that Washington DC was designed according to astronomical symbols, and so I will now.

Firstly, let me discuss the issue of Benjamin Banneker and his role in designing Washington DC. Benjamin Banneker was a free African American who educated himself on astronomy and mathematics. But he was far better known during his time as a surveyor and as an Almanac writer.

These were the skills that endeared him to American society in the still very pragmatic, down to earth, and agricultural world of the 1700's. Banneker's involvement in the design of the nation's capital has been the subject of much controversy. Some are doubtful that he had much of a role in a society still dominated by slave holders. However, we have to remember that the late eighteenth century was not the racially polarized mid-nineteenth century of the Civil War.

The world of the Founding Fathers was much more genteel than the world of the Southern Secession.

***Free African Americans voted in the 1700's, and voted in favor of the Constitution during the debates over its adoption. Banneker was prominent as an intellect among all Americans of all colors.***

Few would have argued against the use of his services in the time of the early Republic, before the nation became polarized over the issue of slavery. I personally believe the account that Banneker was involved in the building process of our nation's capital.

Now, let us consider the story that the astronomer Banneker actually had photographic memory, and that he remembered Pierre L'Enfant's original plans after the French architect stormed away over the age old issue of creative freedom and artistic license versus the dictates of governmental leaders. (Some things never change!) Presumably, Banneker continued those plans from memory. However, a question arises in my mind that I cannot suppress. Leaving aside the whole issue of whether or not Banneker had photographic memory, I wonder why the original plans would be followed if indeed they were slated to be altered (as the legend goes). Something is not quite right there. If indeed Banneker was relied upon to continue the plans, then indeed it is more likely that the new plans that saved the day were Banneker's plans and not those of L'Enfant! And, if indeed Washington was laid out according to astronomical symbols, then it is probably Banneker, an astronomer well versed in the symbolism of the Zodiac, who

## Clarification

Let me clarify in case there was any confusion around my use of the term "allow" in my article on Scientific Literacy. I did not intend to suggest that the use of government forces against those who hold certain beliefs, merely the use of strong persuasion. I want the public to have as much information as possible so that they can make choices free of vested interests. This was the view of Jefferson and it is also the view of any true friend of democracy that sometimes tell people what they do not want to hear. – Nathaneil

## Washington DC and Astronomy *(Continued from the previous page)*

would have been relied upon to make it happen. It is a revolutionary claim, one not easily embraced by historians; but please remember that it was Banneker who knew astronomy better than even most eighteenth century American or French intellectuals. It is not beyond the realm of possibility that Banneker drew up his own plans after L'Enfant walked away, and handed them to his friend Andrew Ellicott who in turn convinced George Washington to move ahead with them.

Whether my theory can be confirmed or not, it is a growing consensus among some mainstream historians that

Washington

DC was designed according to astronomical symbols. It is even the opinion of distinguished Professor of Astronomy Anthony Aveni, a skeptic who does not fall easily for outlandish theories. His 2008 History Today article "Bringing the Sky Down to Earth" argues that Washington was a city based on astronomy, one among many world cities so designed. We can venture a little further from the mainstream and find David Ovason's Secret Architecture of our Nation's Capital. Ovason alleges that key designs in



*Pierre (Peter) Charles L'Enfant*

Washington align with the Zodiac, in particular the Orion constellation and the star Sirius. Key buildings correspond to the Summer Triangle, the constellations, and the arcane symbolism that the stars represented to the ancients. In analyzing Ovason's book, we have to remember that the clear distinction between astronomy and astrology of our rational and scientific age was not rigid in the 1700's. Even skeptical

astronomers moonlighted as astrologers or conjurers for the money. Indeed, the symbolism of the constellations was considered to be rich in classical allusions that literary people adored during that time. Some of Ovason's claims may be a bit far afield. In particular, some might object to the idea that Banneker and the Founding Fathers were privy to occult knowledge, but the research does seem to suggest that the symbolism of the Zodiac has been prevalent in the construction of DC over the past two hundred years. According to Ovason, the Zodiac finds its way in to the Capitol, the White House, the National Academy of Sciences, the Library of Congress, and other national monuments.

***Mainstream research on astronomy and Washington DC is tame compared with the beliefs of the alternative media and paranormalist community.***

I have come across websites

claiming that the layout of Washington DC corresponds with the Face on Mars and the surrounding pyramids. I have also come across websites claiming that Washington DC was designed by extraterrestrials who directed the Founding Fathers. The alternative community goes way beyond mainstream science in embracing the idea that Washington DC is the "City of the Stars." I want to say personally that I am attracted to the idea of aliens interfacing with Earth. I have often wondered whether or not there are small scale "Dyson spheres" traveling between Solar Systems, some perhaps even parked in our own Solar System. Perhaps they are not powered by stars like traditional Dyson spheres would be. Rather, my fantasy has them powered by matter-anti-matter collisions, a great source of power that would allow for small bodies that could even travel at incredible speeds. Under this scenario, the traditional objection to the idea of extraterrestrial contact with Earth, the idea that the light speed limit would prevent it, would be sidestepped by the idea of whole planet type bodies moving throughout the Galaxy and parking themselves within a few Astronomical Units of inhabited planets. I could even eloquently put forth a fantastic scenario about the hundreds of billions of rogue planetary bodies that astronomers have theorized may exist on our Galaxy. This is the stuff of speculation and wonder!

However, as the scientific community often says, "extraordinary claims require extraordinary

## Washington DC and Astronomy *(Continued from the previous page)*

evidence." Well, that statement may or may not be true, and its meaning can be debated, but it is probably a good guide in cases like this. I tend to think that if extraterrestrials have visited Earth, as is claimed by some, then they would be guided by self-interest more than a desire to spread intergalactic freedom and democracy to our young nation. Perhaps Carl Sagan and the SETI skeptics over-reached when they entirely ruled out even the possibility of extraterrestrial visitation, but I tend to see skepticism as a good guide in addressing the idea of interplanetary visitors guiding Washington on the Potomac. Now, I do not want to leave this line of speculation without noting one thing.

### ***Many of the Founders of this country were interested in the idea of extraterrestrial life.***

Thomas Paine wrote about the idea. So did John Adams. Hugh Williamson is one of the lesser known Founders, and yet his belief in extraterrestrials was a matter of record during his time. I would suggest that it was the interest in Astronomy that guided the Founders and moved some of them to try and place astronomical symbolism in to the architecture of Washington, one perhaps even motivated by the idea that other planetary bodies were inhabited by "different Ranks of Rational Beings." (The exact words of John Adams) I tend to be skepti-

cal of the claim that extraterrestrials came to Earth and intervened in the building of our nation's capital, but I do think that belief in the possibility of extraterrestrials may well have played a part in the construction of the "city of the



stars." While the notion that it was the human mind that inspired our nation's capital is less exotic than the idea that aliens came to Earth, it would still leave room for cosmic speculation and a sense of the mysterious.

In looking at the fact that a lot of creative talent existed among the Founders, and that many of them were interested in science, I do not know for sure if the design of the nation's capital was the brainchild of astronomer Benjamin Banneker or not.

However, I consider the idea probable. If anyone would carry astronomy in to the public sphere, it would have been an astronomer. We may never know the truth in this matter, since Banneker's papers were destroyed in a fire on the very day of his

funeral. His personal papers may have told a more complete story, one lost to the flames. Today the issue is one that does not get the attention it deserves in academia. My sense is that little is understood about Astronomy among historians, hence the difficulty of historians investigating astronomical symbolism. Other historians may be concerned about the responses from ordinary Americans who might be confused about the fact that public education does not tell the whole story of human history.

### ***Also, some Americans of certain religious bents might not appreciate the use of Egyptian or Roman symbolism embedded in the Capital.***

And finally, some might be disturbed that the powerful have never been fully honest with the people, that a hidden design could have been known to the few but not shared with the many. However, my opinion is that I think that Americans can handle the truth. A genuine mystery deserves a genuine investigation and the public deserves a genuine answer.

### **Post-script**

I have had a good run for the past two years with the wonderful team at the Newsletter. I am going to have to take a break for a while in order to pursue my career, but I want to thank my readers and the Newsletter team for a wonderful time. I may still be submitting from time to time as time permits, but it will no longer be as regular. I hope that it has been as enjoyable for you the reader as it has been for me as writer. I thank you all.

## The MDAS swap meet is coming soon!

By Richard Ozer

This November, the MDAS general meeting will be devoted to a swap and auction. The club holds this event every two years; enough time for everyone to collect enough stuff in their garages to make it worth our while.

### *There are three ways to move your items:*

1) Simply price tag them and sell them from a table. The club will ask 5% of the proceeds.

2) Hold a "silent" auction, where you place a sheet of paper next to the item in question along with a minimum price, and let people declare their bid. The highest bid at the end of the evening wins. Again, the club will ask 5% of the proceeds.

3) Donate your item(s) to MDAS. The club will gladly accept your generous donation and will sell the item silently as a fundraiser.

If you have any questions, contact Rich Ozer at [rozer@pacbell.net](mailto:rozer@pacbell.net)

## Scopes Needed – Day and Night

### *Please signup if you can make it.*

Thank you and hope to see you out there. . .

*Jim Head*

### *Upcoming Mount Diablo Astronomical Society Events:*

**Thursday October 18, 2012 — 7:00 p.m. - 8:30 p.m.,**

Ron Nunn elementary School Stargazing, Ron Nunn Playground or Park, Brentwood, CA Setup 6:00 p.m.

**Saturday October 29, 2012 — 5:30 p.m. - 11:00 p.m.**

Public Astronomy Program & Int'l Observe the Moon Night, Mount Diablo - Lower Summit Parking Lot, Clayton, CA Setup 5:30 PM



**Friday October 26, 2012 — 6:00 p.m. - 9:30 p.m.**

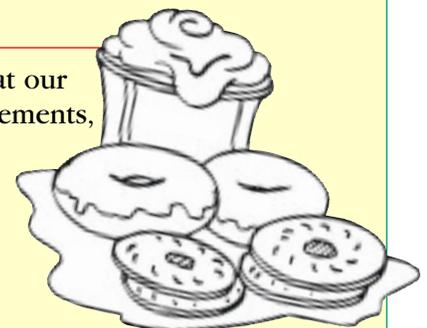
Bay Area Science Festival Stargazing at Heather Farms in Walnut Creek, Heather Farms Dog Park entrance area, Walnut Creek, CA Setup 6:00 p.m.

## Mount Diablo Astronomical Society Event Calendar—October 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	1	2	3	Twin Creeks Stargazing (Private)	4	5 Observatory Maintenance (Private)  Sunset: 6:44 PM
7	Columbus Day Board Meeting (Private) 	8 MDAS Imaging SIG (Private)	9	10	11	12 Society Observing (Private)  Sunset: 6:34 PM
14	15 	16	17	7:00 PM Ron Nunn Stargazing	18	19 5:30 PM Public Astronomy  Sunset: 6:24 PM
21	22 	7:15 PM GonMtg: Coloma Meteor	23	24	25 6:00 PM Heather Farns Stargazing	26 Cub Scouts on Mt. Diablo (Private)  Sunset: 6:16 PM
28	29 	30	31	1	2	3

## Volunteer Wanted

MDAS is in need of a volunteer or two to provide and manage refreshments at our monthly meetings. The volunteer would buy an assortment of cookies and refreshments, and of course will be reimbursed for the expenses.



## Board Members & Address

### President

Chris Ford - [cford81@comcast.net](mailto:cford81@comcast.net)

### Vice President

Rick Linden - [Rick.C.Linden@gmail.com](mailto:Rick.C.Linden@gmail.com)

### Membership Coordinator, Mtg Room

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### Meeting Program Chair

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### Outreach Coordinator, AANC Rep

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### Publicity Board Member

Steve Jacobs - [llasjacobs@astound.net](mailto:llasjacobs@astound.net)

### Observing Committee Chair, Board Member

Richard Ozer - [rozer@pacbell.net](mailto:rozer@pacbell.net)

### Whats Up Coordinator, Board Member

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### Webmaster

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### Secretary and Refreshments

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### New Member Steward

Nick Tsakoyias - [claytonjandl@aol.com](mailto:claytonjandl@aol.com)

### Mailing address:

MDAS  
P.O. Box 4889  
Walnut Creek, CA 94596-3754

### General Meetings:

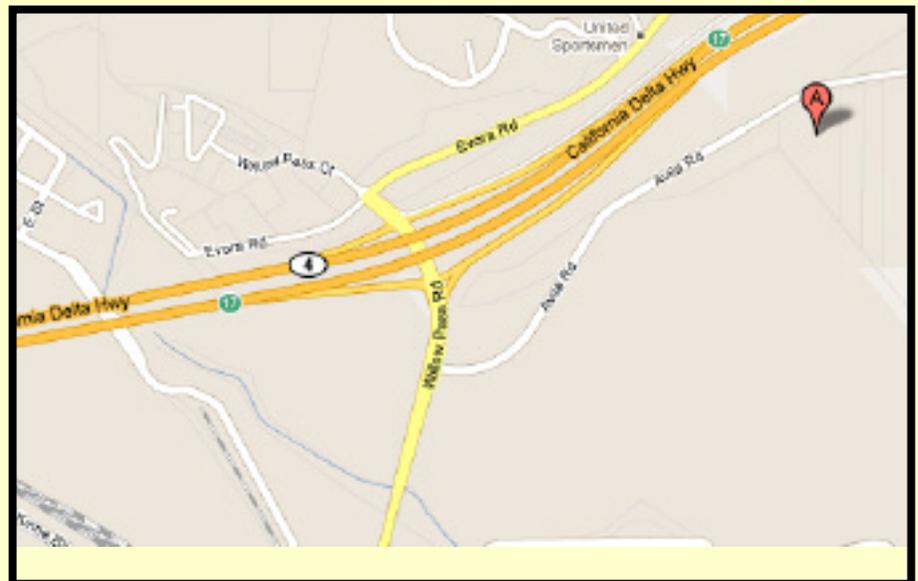
Fourth Tuesday every month,  
except on the third Tuesday in  
November and December.  
Refreshments and conversations  
Meetings begin at 7:15pm.

### Where:

Concord Police Association  
5060 Avila Road, Concord, CA 94596-3754  
The last meeting at this address will be in  
December 2012.

### Directions to facility:

Avila Road is off Willow Pass Road. Turn east  
onto Avila Road approximately 300 yards  
south of the Willow Pass Road off-ramp from  
the Route 4 freeway. Turn right into the Police  
Association Facility at the crest of the first hill.



## Your Help Would Be Greatly Appreciated

Our association needs a few members to come at 6:30 p.m. before our monthly meeting which starts at 7:15 p.m. to help in setting up the chairs and other elements needed to conduct the general meeting.

Similarly at the end of each meeting the chairs and tables have to be removed, the room has to be cleaned and the garbage emptied.

**Thank you for your help.**

