

**PARK MEADOWS METROPOLITAN DISTRICT**

**SPECIAL MEETING**

**AGENDA**

**Board of Directors:**

**Term Expires:**

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John Herbolich, President	May 2016
Mark Thomas, Vice President	May 2014
Roger Pearson, Treasurer	May 2014
Greg Kelly, Secretary	May 2014
Sharon Van Ramshorst, Ass't Secretary/Treasurer	May 2016

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**DATE:**        **January 14, 2013**

**TIME:**        **11:30 a.m.**

**PLACE:**      **Lone Tree Civic Center**  
**8527 Lone Tree Parkway, Room B**  
**Lone Tree, CO 80124**

11:30 a.m.    I.    Call to Order

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II.    Declaration of Quorum/Director Qualifications/Disclosure Matters

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III.    Approval of Agenda

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11:35 a.m. IV. Discussion of PMMD Flagstone Medians

- A. Results of January 9<sup>th</sup> Tour
  - B. Median Construction Specifications
  - C. Rocky Mountain Masonry Institute Recommendations Re: Future Median Construction and Maintenance Work
  - D. July 2012 Median Repair Priorities and Recommended Schedule 2013 - 2016
  - E. 2012 Median Repair RFP
  - F. Next Steps
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V Other Items

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1:30 p.m. VI. Adjournment

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**Next Scheduled Meeting: The Next Regular Meeting is scheduled for January 28, 2013 at 5:00 p.m. at the Lone Tree Civic Center, Meeting Room A, 8527 Lone Tree Parkway, Lone Tree, Colorado.**

The Following Are Post Packet Items:

Items That Were

Distributed At The Meeting

And Not In

The Original Packet

John J. Herbolich  
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BB  
1-17-13  
Photo  
Barad Mj

### ***REPAIRS to MEDIANS with MORTARED PAVERS***

Most of your medians were constructed with stone pavers mortared to below-grade concrete. Some of these medians were built with compressible filler between the pavers and the curb. Most were built with mortar in the joint between the pavers and the curb. The medians with compressible filler seem to be in good condition but those with mortar in this critical joint are failing. Have the mason grind out the damaged mortar at least 1.5" deep. Insert a backer rod and add self-leveling flexible sealant.

Many of these medians were built without enough control joints. Where joints are cracked, have the masons grind out the failed mortar and replace it with backer rod and sealant (as above).

### ***REPAIRS to MEDIANS with SAND-SET PAVERS***

Sand in the joints between sand-set pavers can wash away with rain. It needs to be refilled every year or two. Simply add more sand and sweep it into the joints.

### ***REPAIRS to DAMAGED JOINTS in STEPPED STONE PLANTERS***

Some of the wide horizontal mortar joints underneath the stepped stone planters were breaking up. This mortar is failing prematurely because the joints are too wide and because there are no weep holes to let trapped moisture out of the assembly.

Where you see evidence of flaking mortar in the bed joints, have the masons grind out the joints twice as deep as they are wide and replace the damaged mortar with fresh mortar that matches the original construction. You should also have them drill weep holes in the bottom bed joint at +/- 24" on center. These weep holes will need to be relatively deep to reach behind the stone. Stuff drainage fabric into this newly drilled weep hole to keep soil from blocking it. You only need to drill weep holes in portions of the planter wall where you have seen mortar damage.

### ***FUTURE MEDIAN WORK***

Sand-set pavers last longer in our severe climate. They also have fewer maintenance issues. I suggest that you design sand-set systems for your medians in the future.

### ***STONE***

The stone you are presently using is from the area around Estes Park. This is particularly hard dense sandstone. It is significantly harder and more weather-resistant than typical sandstone. Since it is exposed to severe weather and salt, I would recommend a minimum thickness of 2.5" to 3".

Stone can be ordered with saw-cut edges or snapped edges. The sawn edges are much more accurate but they also cost more. Since your medians are typically seen from a distance by commuters whizzing past in their cars, the snap-cut edges are probably a reasonable budget choice for your work.

## **MORTAR**

Mortar joints that are too wide or too thin do not weather well. An ideal size is between 3/8" and 5/8".

Either Type S or Type M mortar is appropriate for these medians. These types of mortar have more Portland cement and less lime. They are more water repellent but also more brittle than standard Type N mortar.

## **DE-ICING SALT**

I need to do more research before I can give definitive recommendations on de-icing salt.

## **POLYMERIC SAND**

Because polymeric sand is not breathable, I do not recommend it for your project, either in the sand-set or the mortared installations.

## **QUALITY CONTROL**

I was not impressed with the craftsmanship I saw in some of your medians. The majority of the work is good but there are a few rough edges. I suggest that you have your next contractor build a couple of Mock-Up Panels for the work—one for the mortared stepped retaining walls and a second for the paving areas. Critique these small examples of the final work before the project begins. If you have questions about the craftsmanship of the project, compare the work to the Mock-Up Panel.

## **MASON CONTRACTORS**

There is only one RMMI mason contractor specialize in flatwork (pavers & landscape work).

Paul R. Clark Masonry, Inc.  
303-455-4447  
[Pclark32@juno.com](mailto:Pclark32@juno.com)

Gallegos Corporation  
303-753-1021  
[sales@gallegoscorp.com](mailto:sales@gallegoscorp.com)

We have two that do a lot of work with natural stone:

A.P. Eberlein Company  
970-535-9388  
[pemeberlein@eberleincompany.com](mailto:pemeberlein@eberleincompany.com)

Call if you have any questions about these recommendations.

Diane Travis  
Technical Director  
Rocky Mountain Masonry Institute

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January 10, 2013

John J. Herbolich  
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Dear Mr. Herbolich,

As I mentioned during our tour of the medians in Lone Tree, there are two distinct types of installation techniques for pavers: pavers set on a flexible substrate (sand) and pavers set on a rigid substrate (concrete). Here in Colorado, sand-set pavers last longer.

If masonry goes through a freeze-thaw cycle while it is in a saturated condition, it can crack as the water in the mortar and the stone turns to ice and expands. If it is dry when it is frozen, the temperature change does not affect the stone. Construction details should be designed to help keep the water out of the masonry wherever possible.

If the masonry is in constant contact with the soil, it is impossible or impractical to try to keep the masonry dry. Pavement and retaining walls should be designed to allow the water to quickly pass through the masonry layer and drain harmlessly into the ground below.

### **MASONRY PAVERS**

Because we have so many freeze-thaw cycles in Colorado (about 150 cycles each year), pavers here will last longer if they are installed on a drainable substrate that will allow moisture to slip past the pavers into the soil below. Pavers that are mortared to concrete fail sooner because each paver is surrounded on all sides with mortar. The mortar surrounds the paver and guarantees that it will be saturated when the freeze comes. This will quickly destroy any masonry system.

Excavate the area under the proposed pavement area to a depth of 5" to 8". Install a rigid border around the perimeter of the paved area to enclose the pavers and keep them from migrating as traffic pushes the individual pavers around. This rigid border can be a strip of metal or rigid plastic held in place with spikes driven deeply into the ground. Rigid curbs of concrete or mortared stones also make good borders.

Install a 2" to 4" layer of structural fill (60% stone chips, 40% stone dust) at the bottom of the pavement bed. Compact this layer in place. Lay a sheet of landscape filter fabric over the base and then install a 1" layer of sand over the filter fabric. The filter fabric will keep the sand from migrating into the air spaces in the gravel layer. Smooth the top of the sand layer with a board so that it is a paver depth below the finished elevation. Set the pavers in place, leaving no gaps between pavers for mortar. Sweep or vibrate loose sand into the thin joints between pavers to lock them in place.

### **STEPS**

Steps in masonry construction must remain firm and cannot be allowed to rotate underfoot. This safety issue requires steps to be mortared in place. Use Type "M" or Type "S" mortar for

pavers. Types "M" or "S" mortars are more water repellent than other mortars. Since mortared pavers are more likely to break down with freeze-thaw action, I would recommend treating the steps with a penetrating water repellent product to keep water out and minimize freeze-thaw damage.

### ***MASONRY PLANTERS***

Masonry planters are subject to irrigation as well as natural rainfall. Make sure that the base of the planter has weepholes to allow irrigation water to drain away. Install flashing under the top cap of the planter and apply water repellent to keep this horizontal surface as dry as possible.

### ***MASONRY FENCES***

A brick or concrete block fence will last a long time with little or no maintenance, but a good weather-shedding cap is the real secret to longevity because the cap is the only horizontal portion of the wall. This is where rain and snow can accumulate and slowly soak into the wall. If possible, slope the top of the cap (at least 1:12) to shed this water before it can cause any problems. If you must install a flat cap, install through-wall flashing under the cap to keep the rain from soaking the entire wall. You can also spray the top of the wall with penetrating water repellent (silane or siloxane-based products work best). Finally, you can ask the mason to rake mortar joints in the cap back about 3/8" and you can fill the recessed top of the joint with sealant.

If you are expecting storm run-off at the base of a masonry fence, you need to install a weep system that will allow the water to bleed through the wall. Open head joints at 16" on center will typically do a good job.

Diane Travis  
Technical Director  
Rocky Mountain Masonry Institute