Porous Asphalt Parking Lot
Sand Run Metro Park
2400 Sand Run Parkway, Akron, Ohio

Paul D. Wilkerson, PE, CPESC
Metro Parks Mission

The Mission of Metro Parks, Serving Summit County is to acquire, conserve, and manage natural resources and to provide the public with safe, outdoor recreation and educational opportunities through a system of regional natural area parks.
Sustainability Policy

• Energy conservation
• Biodiesel and ethanol
• Local supply, recycling
• Pollution prevention practices
• Sustainability in capital and major maintenance projects
MS4 under NPDES Phase II stormwater permit

Hold ourselves and our projects to a higher standard
Ranger Office: Green Building!
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Pervious paver parking lot
Local supply - Belden Brick
Recycled concrete base
Ranger Office: Green Building!

Pervious paver parking lot

Local supply - Belden Brick

Recycled concrete base

ZERO DISCHARGE!
Sand Run Jogging Trail
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Hydrologic Design – storage volume required

- Store/infiltrate volume of 2-yr storm with FS=2
- Consider porous pavement as impervious for runoff calculations
- Need redundant drainage such as edge drain to capture & direct runoff to storage
Site Design - recommended

• Soil borings/field test infiltration rate
• Level, sandy site generally ideal
• Wells within half mile?
• Design subgrade and surface slope between 1% and 4%
Site Design – our site

- No borings, and soil not like soil at adjacent site
- Not level, silt loam
- Subgrade and surface slope between 3% and 5%
- No wells to worry about
Site Design – our site
Site Design – our site
Site Design – our site
Porous Asphalt section

Uncompacted subgrade
Porous Asphalt section

<table>
<thead>
<tr>
<th>BX1100 geogrid</th>
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</thead>
<tbody>
<tr>
<td>Uncompacted subgrade</td>
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</tbody>
</table>
Porous Asphalt section

- 9” #1/#2 crushed concrete
- BX1100 geogrid
- Uncompacted subgrade
- 40% voids
<table>
<thead>
<tr>
<th>Layer</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>2” #57 limestone</td>
<td></td>
</tr>
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<td>9” #1/#2 crushed concrete</td>
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Porous Asphalt section

- 3” porous asphalt
- 2” #57 limestone
- 9” #1/#2 crushed concrete
- BX1100 geogrid
- Uncompacted subgrade
Porous Asphalt section

Redundant Edge Drain

3” porous asphalt

2” #57 limestone

9” #1/#2 crushed concrete

Nonwoven fabric

Perf pipe to daylight

Uncompacted subgrade
Mix Design

Air voids >18%

Draindown<0.3%

AC 5.75% - 6.0%

Polymer or rubber additive 5.5%-12%

See ODOT Porous Asphalt Surface Course
Mix Design

Allied Materials

- 64-22 binder
- 70% #8 limestone
- 30% #9 limestone
Mix Design

Rub-R-Road
R504 latex
Final PG 76-22

Keeps it stiffer in hot weather
Placement & Compaction

Karvo Paving
Akron

Light roller, 1-2 pass at 300° target

Keep trucks off!
Placement & Compaction

Prevent wash from adjacent areas

Project sequence to build porous parking last

#57 limestone

304 base
Placement & Compaction

Prevent wash from adjacent areas

Project sequence to build porous parking last

Perf. Pipe outfall
1,320 sy

$39,000 for grid, base, and asphalt

$30/sy
No curb
Edge drain

No curb
Stinky toilet
Edge drain
No curb
Surface damage
Maintenance

KEEP IT CLEAN!
Prevent soil wash from adjacent areas

Only salt for de-icing (75% less salt in UNHSC study!)
Maintenance

Careful plowing

Vacuum sweep 1 – 2 times annually

NO SEAL COAT!
LESSONS LEARNED

• Test soil – know infiltration rate & expectations for project

• Design for relatively level subgrade - <4%

• Subgrade sound but not compacted – keep trucks off subgrade – spread stone base on the way in

• Plan for overflow from base
LESSONS LEARNED

• Shear strength not quite like “regular” asphalt
RESOURCES

• ODNR Rainwater and Land Development Manual
• National Asphalt Pavement Association
• Center for Watershed Protection
• US EPA
• www.rub-r-road.com
Thank you! Questions?