Alternative Surfacing

The presentation was co-hosted by Mike Freisthler of Asphalt Systems Inc. and Jim Schneider of TrailWorks. Mike’s product is an eco-friendly, durable, alternative technique to painting lines or messages on asphalt. Founded in 1992, Asphalt Systems offers this long lasting striping and messaging system by embedding a tough eighth inch thick plastic material directly into the asphalt. It lasts up to ten years, and is easily repairable. TrailWorks spokesman Jim Schneider offered his many years of experience working with asphalt trails, giving the audience sage advice on how to maintain them. Proper maintenance is the key to a longer lasting asphalt trail, with adequate drainage being “the most critical element in the life of the surface”. Jim’s product recommendations for longer trail life were “don’t use coal tar products” and “use seal coat products instead, such as: Reclamite, GSO 88, and Replay”. Replay being an ecologically friendly agricultural based product.
Welcome…Thank You

Jim Milkert
Mid West Area Manager

Today’s Discussion

Asphalt: New Products & Treatments for Roads
Decorative Treatments
“Green”

Communicate – Listen - Share
Who We Are
Systems – Applications - Installation
Questions & Comments
Review your projects

Objective…IPC The Right Choice

Vision…

“Recognized World Leader…
Decorative Asphalt Solutions”

Plus….

World Leader “Essentials”

Balanced Coating Performance
“Criteria”

Accredited Applicators
“annual accreditation”

Proven Installation Process
“Re-heat Technology”

IPC Team
“Support Available”

In The Beginning…

Conjures up a lot of possibilities

Development of CF(2)RED technology
Unbalanced Properties=No Performance
Art & Science Components
History - Experience

Founded 1992
125 million (+) sq. ft. installed
World wide presence – 44 countries

Proven Durability...Functional & Decorative

Substrates

Horizontal - Asphalt

Markets = Municipal, Commercial, Residential, Parks

crosswalks & sidewalks
streets & medians
race tracks
paths-trails
calming & flow areas
bike-bus lanes

Substrate Comparison

Great Value: budget costs...decorative surfaces

Family of Products

System = Art & Science

The “Science” - Material

SP150E
Ride-A-Way
Thermoplastics
Test Criteria - Coatings

Balanced Properties = Performance

Geographic Recommendations

<table>
<thead>
<tr>
<th>APPLICATION</th>
<th>Dry Climate zone</th>
<th>Wet Climate zone, no scuff concern</th>
<th>Wet Climate zone, scuff concern</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Pavement</td>
<td>D</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Concrete</td>
<td>D</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Traffic control areas</td>
<td>D</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Pedestrian areas</td>
<td>D</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Raised median</td>
<td>D</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Bicycle lanes</td>
<td>D</td>
<td>C</td>
<td>D</td>
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</tbody>
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* Where vehicles come in occasional contact add an additional coat of SP150E (only required at the specific locations where the vehicle touches the surface).
* "Scuff" typically results from stationary vehicle tire turns on pavement.

Coating System A: 3 passes of SP-150E
Coating System B: 2 passes of Cem-Base overlain with 1 pass of SP-150E
Coating System C: 4 passes of SP-150E
Coating System D: 2 passes of Cem-Base overlain with 2 passes of SP-150E
Coating System E: Revive-a-seal
Coating System F: Ride-A-Way

System = Art & Science

The “Art” - Installation

StreetPrint brand
DuraTherm brand
Ride-A-Way

StreetPrint System

Quality installation through highly skilled
Accredited Applicators
The Process:

Step 1: Heating

SR-60 Reciprocating Infrared Asphalt Heater

Step 2: Printing

Template compacted into warm asphalt

3/8" Wide

Step 3: Coating

StreetBond Surfacing System is applied in layers
StreetBond fortifies and colors the surface

Results… System Offering

Great Value
Fast Install
Repairable
Durable
Versatility
Design Freedom
Eco Friendly

Benefit: Enhanced Economics

…less install time vs. other

Less time coordinating with other contractors...
Less Disruption - Faster install & road openings...
**Benefit:** Enhanced Economics

- Durability
  - Failure from traffic, spalling & freeze/thaw
  - Maintenance and fewer trip hazards
  - Longer term ADA compliant

**Benefit:** Enhanced Economics

- Less Annual Maintenance

- Annual maintenance costs

**Benefit:** Enhanced Economics...Durable

- Toledo, OH

- After 5 years...

**Benefit:** Enhanced Economics...Durable, Long Lasting

- Chicago, IL

- 2400 South M.L.K, Dr.

- 2003

- After 3 years...Baltimore, MD

**Benefit:** Great Aesthetics

- St. Paul, MN

- Monolithic, Uniform, Visible

**Benefit:** Versatility...Flow Control - Visibility - Safety, Aesthetics

- St. Paul, MN

- Level Medians

- Visual Narrowing
Benefit: Functional: Visible X Walks

Save On, Edmonton, AB
Tualatin, OR

Benefit: Design Freedom: Identification

San Luis Obispo, CA
Minneapolis, MN

Benefit: Design Freedom - Aesthetics

Tutor Time West Coast

StreetPrint System

Mahomet, IL
Lake of the Woods Golf Course

Installed 2008, 5,748 sq. ft., color = granite with terracotta border

StreetPrint System

Mahomet, IL
Lake of the Woods Golf Course

Installed 2008, 5,748 sq. ft., color = granite with terracotta border

StreetPrint...Provides

Great Value
Fast Install
Repairable
Durable
Versatility
Design Freedom
Eco Friendly
Inlaid Thermoplastic known as DuraTherm

Art & Science

DuraTherm

ThermoplasticTech. templates material

Installation Conceptually = S.P.

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Installation: Step 1... Heating

Installation: Step 2... Printing

Installation: Step 3... Place Thermoplastic

Installation: Step 4... Melt into Place

DuraTherm inset fused with asphalt

Installed below road surface eliminating 'high point' wear
Features:

- Below asphalt grade: depth = 150 mil, thickness = 90 mil

Resulting in:

Great Value
Fast Installation
Repairable
Durable
Versatility
Design Freedom
Functional

Benefit:

Enhanced Economics:

- Fast Installation
  * Installed in < 90 min. per
  * before & after

City of San Leandro, CA

Benefit:

Enhanced Economics: Durability

City of Chicago

August, 2005

Benefit:

Enhanced Economics: Durability, < maintenance

Glass Beads provide reflectivity at night

Benefit:

Enhanced Safety - Visibility

Standard thermoplastic stop bar
Benefit... Vibration Free & ADA Compliant

Benefit... Versatile

International - Italy

Benefit: skid resistance - asphalt
Florida & California DOT approved 'coefficient of friction' test data available by request

Benefit: Design Freedom

DuraTherm System

DuraTherm System

DuraTherm System

DuraTherm System

Bayport, Stonybrooke, Geneva, Saratoga Springs, Poughkeepsie, Oneonta
Benefit

**Functional Durability**

- Manhattan, New York

- **DuraTherm System**

Benefit

**Functional - Enhanced Safety**

- Becker, MN: Safe Route to Schools

- **DuraTherm System & LogoTherm**

IUPUI

- Indianapolis, IN

Installed November 2007

- **DuraTherm System**

- **IUPUI**

- Indianapolis, IN

Installed November, 2007

- **IUPUI**

- Indianapolis, IN

Features

- Below asphalt grade: depth = 150 mil, thickness = 90 mil

- **Great Value**

- **Fast Installation**

- **Repairable**

- **Durable**

- **Versatility**

- **Design Freedom**

- **Functional**
Design Services

Enhanced Safety, Aesthetics

Renderings of Proposed Installation for Wal-Mart, Canada

Loyola University, Chicago, IL: 2006

IPC...The Right Choice
www.integratedpaving.com
1-800-688-5652

Support Team – 8 Area Managers

Jeff Gordon, Engineering Services Representative, ext. 267
Bruce Biles, V.P. Engineering Services Manager, ext. 251
Pat Wiley, V.P. R&D, Coatings/Technology, ext. 229

Michael Slater, Architectural Design Services Mgr., ext. 232
Kris Till, Field Service/Equipment Mgr., ext. 224
Design Services

Times Square, NY

Filipino Town, City of Los Angeles

Whistler Ski Resort
BC, Canada

Indianapolis, IN…Cultural Trail

Alabama St. – North to Market St. x 7 Intersections (6K sq. ft.)
Installed 2008
Great Value
Fast Installation
Repairable
Durable
Versatility
Design Freedom
Functional

LEED construction trends

10% of all construction to be Green by 2010
2008 = 80% green construction growth
2009 = comparable projection
Commercial green growth:
2006 - 4 billion
2010 - 23 billion
Avg. green construction size-350,000 sq ft.

Source: Yudelson & Assoc 12/08

LEED in the marketplace

“Requirements, Initiatives, and Ordinances”

<table>
<thead>
<tr>
<th>Agency</th>
<th>2007</th>
<th>2008</th>
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<tbody>
<tr>
<td>Municipal Gov’ts</td>
<td>75</td>
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<td>12</td>
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<tr>
<td>University systems</td>
<td>-</td>
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</tbody>
</table>

LEED Certification Category

Heat Island Effect: Reduction
Coatings with SRI > 29
Open grid paving system
Shade (within 5 yrs of occupancy)

Current LEED Colors

SRI 29 (+)

Safety Blue | White | Fawn | Khaki
--- | --- | --- | ---
33 | 73 | 29 | 32
50 | 36 | 46 | 32
Irish Cream | Sandstone | Sun Baked Clay | Limestone Gray
Perception is Reality

Cool
Hot

Solar Reflective Coatings

Goal SRI-29

Infrared

Perception is NOT Reality

Cool

Current LEED Colors

SRI 29 (+)

Safety Blue
White
Fawn
Khaki

Irish Cream
Sandstone
Sun Baked Clay
Limestone Gray

33
73
29
32

29
32

33
73

50
36
46
32

SOLAR REFLECTIVE COATINGS

Product Line: 8-10 additional
Colors: browns, terracottas, grays
Time-frame: May-June 2009
COOL PAVEMENTS LAST LONGER

Temperature Effect on Aging of Viscosity

COOL PAVEMENTS MORE STABLE

Temperature Effect on Rutting

Solar Reflective coatings….

High Performance System

Value, Versatility, design free

Desirable – “cooler”, attractive, it’s green!

Total System Costs - improved

LEED compliant

Results…

Brooklyn Bridge Park: installed 2008, 30K sq. ft., color = Irish Cream

Brooklyn Bridge Park: January 13, 2009
NY wins “2009 Sustainable Transit Award”

Institute for Transportation & Development Policy
Website = ITDP.com; Tab = Program Areas; Section = Featured News
**Hearst Beach Club: Santa Monica**

- Installed: 2008
- Sq. ft: 131K
- Color: Khaki & Limestone Gray

**Website**: Friends of 415 PCH

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**Ride-A-Way coatings**

The right SYSTEM at the right time.

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**More people riding bikes**

- Economics
- Healthier life style
- Green movement
- Quicker commute
- Safer

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**New York City: DoT**

- 530 + miles of bike lanes in NYC
- Plans for additional 200 miles over next 3 years
- 18 miles of colored bike lanes
New York City

**Sustainable Streets Strategic plan** Spearheaded by Mayor Michael Bloomberg

“NY Known for high rises, but just too many cars on the road. This initiative is to make NYC a better place to live for pedestrians and bike riders”
Chino Hills, CA
Looking great after 6 yrs in service

Italy
After 5 years

Australia
Length =13 km

Israel

Spain
Ride-A-Way: Bus Lanes

Manhattan, NY August 2007

57th after one year

View: Empire State Building


The right SYSTEMS at the right time.

Application: Bike - Bus Lanes, Paths, X walks

Colored lanes are growing trend
Ride-A-Way is the ideal product
Fast & Easy to Install
Proven Performance
Great Aesthetics

Family of Products

Traditional
Creative / Contemporary
Natural
Specialty

High
Imprint

Med
Street
Print XD
(ddevelopmental)

Low

StreetPrint

BRIDGELINC

RevivaSeal

TrackBond50
Thank You

Jim Milkert
630-901-2091
jim.milkert@streetprint.com
www.integratedpaving.com

?? – Comments
Projects to Consider
**Building Economical and Environmental Sustainability**

- Long Term Trail Maintenance

**Maintenance Premise**

- Good maintenance begins with good design.
- Drainage is the most critical element in the life of your surface.
- With proper maintenance you can expect a 20 year life from your surface.

**Routine Maintenance**

- Mowing
- Cleaning
- Trimming
- Vandalism repair
- Litter control

**Periodic Maintenance Operations**

- Mowing – extra swathe for clearance
- Trimming – maintain height and side clearance
- Edging – prevent vegetation encroachment

**Maintenance Costs**

- $500 - $5,000 per mile per year
- Factors
  - Level of care
  - Site of trail
  - Surface of trail
**Trail Surfaces**
- Aggregate
- Concrete
- Asphalt

**Asphalt Maintenance Strategy**
- Retard progressive failure
- Arrest light deterioration
- Reduce need for reactive maintenance

**Long Term Maintenance for asphalt surfaces**
- Crack sealing
- Seal Coating
- Pavement Repair

**Crack Sealing**
- Prevents debris build-up in cracks.
- Prevents water from entering base and sub-base.
- Prevents continued deterioration.
- Perform every 2 years.
- Recommend use of a rubberized sealant.

**Purpose of Seal Coating**
- Arrest deterioration
- Prevent water infiltration
- Restore oils to upper surface
- Prevent loss of fines
Seal Coat Products

- Reclamite
- GSB 88
- Replay
- Do Not Use Coal Tar based Products
- Cost - $4,500 – 5,000/mile

Replay

- Agricultural base, not Asphalt
- Restores oils to upper 3/8" of asphalt surface
- Prevents loss of fines
- Goes on virtually clear; no need for re-striping
- Non-slip when dry
- Recommended application – every 3-4 years

Replay Applicators

Replay Application

Pavement Repair - Asphalt

- Avoid cuts at all costs
- Develop tight specifications for repair
- Saw-cut all edges
- Properly compact all fills
- Specify compaction rates for fill and asphalt
- Apply AC-20 to sides of cuts
- Consider re-heating techniques
Asphalt Surfacing Alternatives

- Slurry seal
- Skim coats
- Micro-surfacing
- Chip and seal

Asphalt Re-surfacing

- Consider grinding and repaving
  - May be more cost effective
  - Requires no re-barring
  - Requires no re-seeding

Always add at least a 1 ¼” course of asphalt

Trail Solutions

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Fax (937) 320-1109
jim@trail-works.com

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