

APPENDIX A – ROADWAY SURFACING OPTIONS CATALOG

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PRODUCT SUMMARY TABLE DESCRIPTION

GENERAL INFORMATION

Generic Name(s): Common name(s), not a proprietary or trademark name, used to describe a particular roadway surfacing type.

Trade Name(s): Proprietary or trademark name(s) used to describe a particular roadway surfacing type.

Product Description: A brief description of the product and its composition.

Product Suppliers: A few product manufacturers, suppliers, or contractors. Company names are provided for informational purposes only. Where appropriate, relevant trade associations where the names of suppliers or contractors can be obtained are provided. The listing of names should not be interpreted as an endorsement for any particular company. In most cases, additional companies are available that can provide the same or similar product.

APPLICATION

Typical Use: How the product is typically used as part of the roadway system (i.e. surfacing, binder course, base, subbase, subgrade, stabilizer, dust suppressant, preventative maintenance treatment, etc.).

Traffic Range: Traffic volume that is acceptable or cost-effective for a particular product. For traffic volumes outside of the specified range, life expectancy may be significantly decreased or maintenance costs may be unacceptably high. For this Guide, traffic volumes are categorized into the following classifications, based on information shown in Table 2:

<u>Classification</u>	<u>Traffic Volume (AADT)</u>
Very Low	< 200
Low	200 – 400
Medium	400 – 1000
High	> 1000

Restrictions: Conditions where a product should not be used or used with special care.

Traffic: Issues of concern may include loading conditions (e.g. % trucks, vehicle weights), intersections or turning lanes (frequent turning, braking), etc.

Climate: Issues of concern may include precipitation, temperature extremes, humidity, etc.

Weather: As it relates to in service conditions. Issues of concern may include seasonal restrictions, freeze/thaw, excessive slipperiness when wet, snow, etc.

Terrain: Issues of concern may include roadway alignment, including maximum gradients and turning radii, etc.

Soil Type: Issues of concern may include soil classification, strength, plasticity, % fines, gradation, expansive properties, etc. It will be assumed that the pavement has been adequately designed structurally to take into account the subgrade soil characteristics.

Other: Any additional issues of concern regarding application.

Other Comments: Any additional information that is pertinent in describing a product's applicability.

DESIGN

Unless stated otherwise, it is assumed that best design practices will be followed and that certain design elements will be part of the design. These design elements include: providing adequate cross slope to facilitate runoff and prevent water from ponding on the roadway; providing drainage ditches adjacent to the roadway in rural applications, and a curb and subsurface drainage system in urban applications, to carry away surface runoff and allow drainage of the base; designing cut slopes and embankments to be stable; providing adequate clear zones to remove roadway obstructions or hazards; providing erosion control and shoulder treatment; providing adequate drainage structures to accommodate natural drainage across the roadway, and providing wildlife/fish passage structures, when appropriate.

SLC: Structural Layer Coefficient for use in the *AASHTO Guide for Design of Pavement Structures*.

Other Design Values: Other design parameters commonly used to describe a particular product.

Base/Subbase Requirements: Requirements for the structural layer(s) underlying and supporting the road surfacing.

Other Comments: Any additional information that is pertinent in the roadway design for a product.

CONSTRUCTION

Availability of Experienced Personnel: Information regarding availability of experienced personnel and type of personnel typically used (e.g. maintenance crew, general contractor, specialty contractor).

Materials: Raw construction materials that are used in construction of the roadway surfacing layer.

Equipment: Primary equipment needed to construct the roadway surfacing layer.

Manufacturing/Mixing Process: Brief description of the product manufacturing process and/or any off-site processing prior to placement on the roadway.

Placement Process: Brief description of the placement process.

Weather Restrictions: Weather restrictions (rain, snow, temperature, etc.) on when the roadway surfacing layer can be constructed or placed.

Construction Rate: Typical rate at which the roadway surfacing layer can be constructed or placed by an experienced crew.

Lane Closure Requirements: A description of lane closure requirements and required set time before traffic is allowed on the constructed layer.

Other Comments: Any additional information that is pertinent to the construction of a surfacing layer with a particular product.

SERVICEABILITY

Reliability and Performance History: Information describing how long a product has been used as a road surfacing and how much product information and documented project experience is readily available.

Life Expectancy: An estimate of how long the roadway surfacing will last under normal conditions. The life expectancy will vary depending on the traffic volumes, climatic conditions, and level of preventative maintenance that is used. Life expectancies should not be compared from product to product because performance lives are not necessarily based on equal site conditions. For example, a single and double chip seal may have similar performance durations, but a double chip seal is typically used when increased durability is needed due to site conditions.

Ride Quality: A description of the surface quality as perceived by someone driving on the roadway. Ride quality is related to the surface smoothness and the nature, severity, and extent of surface distresses present. In general, ride quality deteriorates with time over the life of a surfacing.

Table 6. Ride Quality Ratings

Ride Quality Rating	Description
Excellent	New or almost new high quality surfacing, such as HACP, minimal roughness/distress level, even at high speeds.
Good	Good surface condition, low roughness/distress level, some unevenness, especially at higher speeds.
Fair	Moderate roughness/distress level, moderate speeds acceptable for low volume roads.
Poor	High roughness/distress level, suitable only for low speeds.
Very Poor	Very rough ride, can only be driven at very low speeds, may require four-wheel drive.

Main Distress / Failure Modes: Common ways in which the roadway surfacing can be expected to deteriorate or fail.

Preservation Needs: Preventative maintenance needs, including type and frequency of treatment.

SAFETY

Hazards: Any relevant driving hazards, including dust, excessive spray from water on the roadway surface, loose aggregate particles that can be a windshield hazard, etc.

Skid Resistance: The frictional resistance of a surfacing. Used as a measure of how well vehicles can stop on a road surface, especially in wet or icy conditions. For example, a slippery surface has a low skid resistance.

Road Striping Possible?: Whether or not a road surfacing can be striped for lane and roadway edge demarcation.

Other Comments: Any additional pertinent safety-related information.

ENVIRONMENTAL CONCERNS

Source of Raw Materials: Where the raw materials come from. Are the materials natural or manufactured, renewable or nonrenewable, a waste byproduct of another process, etc.

Delivery and Haul Requirements: Issues related to local availability of materials and transportation/shipping requirements. The local availability of materials will vary depending on the project location. A project-specific assessment of material availability and delivery and haul requirements should be made.

Potential Short-Term Construction Impacts: Potential short-term environmental impacts due to the construction of a roadway layer, such as noise, dust, aquatic habitat impact, etc.

Potential Long-Term Environmental Impacts: Potential environmental impacts or concerns of a roadway surfacing layer over the life of the road.

Leachate: Do component materials leach out of the constructed layer over time?

Surface Runoff: Is the water quality of surface runoff from the road affected by the surfacing type? If the road surfacing is impermeable and is replacing a permeable surfacing, consideration must be given to whether the existing drainage ditches and culverts are adequate for the possible increase in road surface drainage and velocity. Inadequate drainage structures can lead to an increase in soil erosion.

Erosion: Is the surfacing layer easily erodable by surface runoff from precipitation? Unless otherwise noted, this information does not address the use of a product or surfacing as a low water crossing.

Water Quality: Issues related to potential water quality impacts.

Aquatic Quality: Issues related to potential impacts on aquatic life.

Plant Quality: Issues related to potential impacts on plants and trees.

Air Quality: Issues related to potential impacts on air quality.

Other: Other long-term potential environmental impact issues.

Ability to Recycle/Reuse: Opportunities to recycle or reuse a product when its serviceable life is over.

Other Environmental Considerations: Any additional environmental issues.

AESTHETICS

Appearance: Appearance of the surfacing layer, including color and texture.

Appearance Degradation Over Time: Comments on how the appearance of the surface can change over its serviceable life. This will also include comments on the visual impacts of necessary routine maintenance.

COST

Supply Price: Price for the product. This price range is a “ballpark” number provided for preliminary cost comparisons between different products. Prices can vary significantly with location, product availability, and size of the project. Local price estimates should be obtained during roadway planning and design. Prices included are based on Year 2004 price estimates.

Supply + Install Price: Estimated price range for the product installed based on typical conditions and design. This price range is a “ballpark” number provided for preliminary cost comparisons between different products. Prices can vary significantly with location, product availability, and size of the project. Local price estimates should be obtained during roadway planning and design. Prices included are based on Year 2004 price estimates.

EXAMPLE PROJECTS

Representative projects where a product has been used.

SELECT REFERENCES

A few references where additional/more detailed information can be obtained.