

Environmental Product Declarations (EPDs)

Environmental Production Declarations (EPDs) – What is it?



Company Information

Minnesota Paving and Materials is an asphalt mixture producer.

MPM - UMORE, a stationary asphalt plant at
1010 158th St. West, Rosemount, MN 55068



Product Description

This EPD reports the potential environmental impacts and additional environmental information for an asphalt mixture, which falls under the United Nations Standard Products and Services Code 30111509. Asphalt mixtures are typically incorporated as part of the structure of a roadway, parking lot, driveway, airfield, bike lane, pedestrian path, railroad track bed, or recreational surface.

Mix Name: SPNWB2308 PG 58S-28 (RAP)

Specification Entity: Minnesota DOT

Specification: MNDOT 2360

Gradation Type: dense

Mix Design Method: superpave

Nominal Maximum Aggregate Size: 0.5 inches

Performance Grade of Asphalt Binder: PG 58-28

Customer [Project/Contract] Number: Not Reported

This mix producer categorizes this product as a Hot Mix Asphalt (HMA) asphalt mixture. This asphalt mixture was produced within a temperature range of 142 to 147°C (287.0 to 296.0°F). Energy and environmental impacts are based on a plant's average performance over a 12-month period and are not adjusted for mix-specific production temperatures.



This declaration is an EPD in accordance with ISO 14025:2006² and ISO 21930:2017³. The PCR is *Product Category Rules for Asphalt Mixtures*⁴. This EPD transparently describes the potential environmental impacts associated with the identified life cycle stages of the described product.

Declaration Number: 132.318.3379 v4 **Software Version:** 2.2.0

Date of Issue: Aug. 26, 2024 **Period of Validity:** March 31, 2027

This EPD is valid for asphalt mixtures produced at the location indicated on this page. Data used to inform this EPD reflect plant operations from a 12-month period beginning on Dec. 1, 2021.

This EPD can be found at <https://asphalt.epd.org/epd/d/1AUQKd/>

LCA performed by: Ben Ciavola, PhD



GENERAL INFORMATION

This cradle-to-gate Environmental Product Declaration covers three cement products produced at the Mason City, IA Cement Plant. The Life Cycle Assessment (LCA) was prepared in conformity with ISO 21930, ISO 14025, ISO 14040, and ISO 14044. This EPD is intended for business-to-business (B to B) audiences.

Heidelberg Materials

Mason City Cement Plant and Terminal
700 25th Street Northwest
Mason City, IA 50401



PROGRAM OPERATOR
National Ready Mixed
Concrete Association
900 Spring Street
Silver Spring, MD 20910
<https://www.nrmca.org/>

NRMCAEPD: 20063

DATE OF ISSUE

July 22, 2022 (valid for 5 years until July 21, 2027)

ISO 21930:2017 sustainability in building construction—environmental declaration of building products: serves as the core PCR for PCR for Portland, Blended, Masonry, Mortar, and Plastic (Structs) (Annexes V.1.2) serves as the sub-category PCR	
Sub-category PCR review was conducted by Thomas P. Glorie, PhD. (t.p.glorie@industrial-ecology.com) • Industrial Ecology Consultants	
Independent verification of the declaration, according to ISO 21456:2017 and ISO 14025:2006: ☒ internal ☐ external	
third party verifier • Jack Oelbig • ecomom consulting	
For additional explanatory material: Manufacturer representative: Jeff Kosik (jeff.kosik@heidelbergmaterials.com)	
This EPD was prepared using the pre-verified GPCA Tool by: Athena Sustainable Materials Institute	
EPDs are comparable only if they comply with ISO 21930 (2017), use the same, sub-category PCR where applicable, include all relevant information modules and are based on equivalent scenarios with respect to the context of construction works.	

Environmental Impacts			
Mason City Plant: Product-Specific Type III EPD			
Declared Cement Products (three): Type II, Type I, Type III			
Declared Unit: One metric tonne of cement			
Global Warming Potential (kg CO ₂ -eq)			
	Type II	Type I	Type III
Global Warming Potential (kg CO ₂ -eq)	687	735	727
Ozone Depletion Potential (kg CFC-11 eq)	2.08E-05	2.17E-05	2.11E-05
Eutrophication Potential (kg N-eq)	1.31	1.35	1.37
Acidification Potential (kg SO ₂ -eq)	1.65	1.70	1.69
Photochemical Ozone Creation Potential (kg O ₃ -eq)	25.8	21.7	36.5
Abiotic Depletion, non-fossil (kg Sb-eq)	2.08E-04	2.14E-04	2.12E-04
Abiotic Depletion, fossil (MJ)	634	643	596
Product Components			
Clinker	94.6%	93.6%	93.9%
Unclinker, Byproduct and Others	5.4%	6.4%	6.1%

Additional detail and impacts are reported on page 6

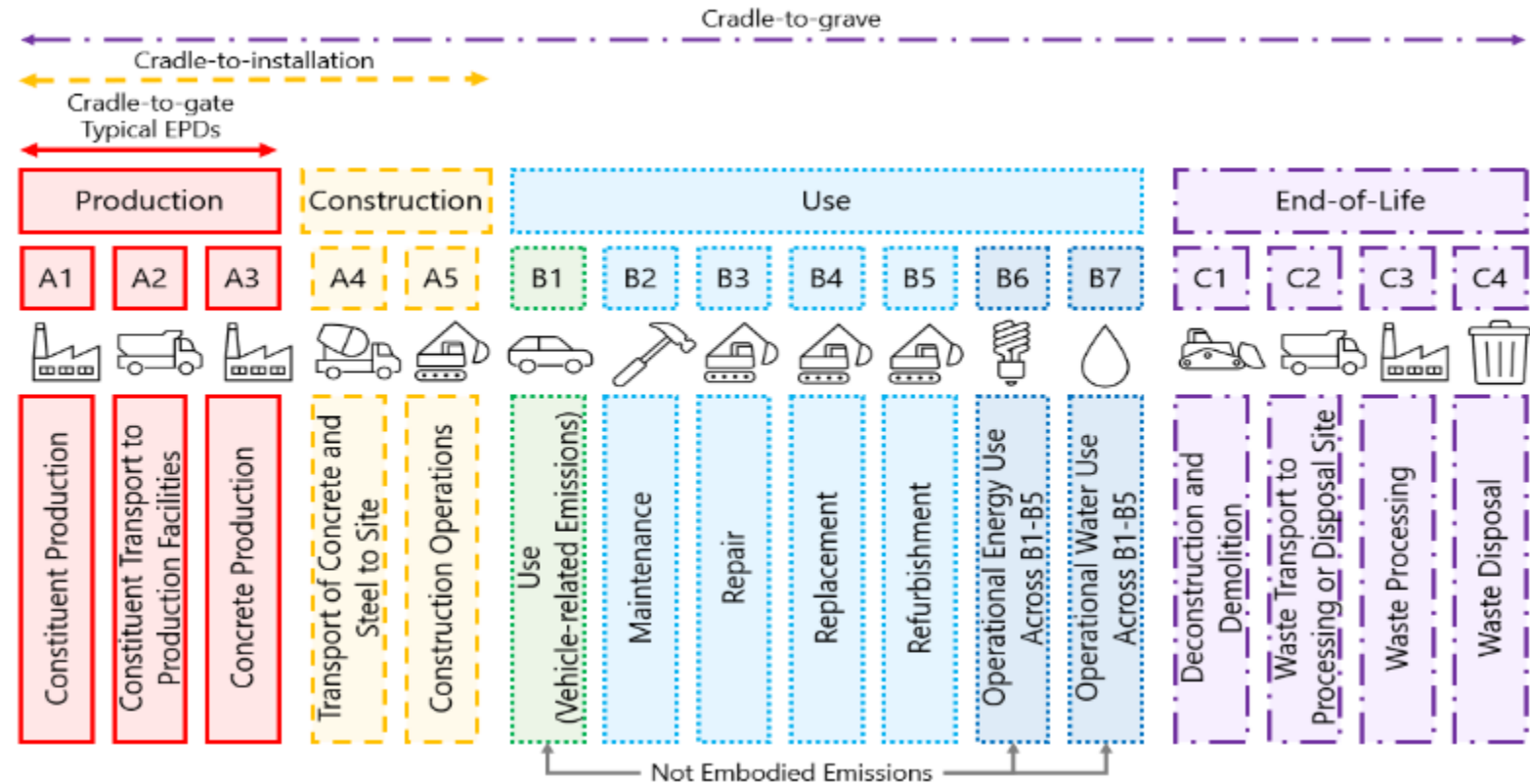
Nutrition label for raw material or produced material measuring global warming potential

ENVIRONMENTAL IMPACTS	
Declared Product: Example Product Description: Exterior 4000 PSI Compressive strength: 4000 PSI at 28 days	
Declared Unit: 1 m ³ of concrete	
Global Warming Potential (kg CO ₂ -eq)	317
Ozone Depletion Potential (kg CFC-11-eq)	8.15E-6
Acidification Potential (kg SO ₂ -eq)	0.89
Eutrophication Potential (kg N-eq)	0.36
Photochemical Ozone Creation Potential (kg O ₃ -eq)	18.7
Abiotic Depletion, non-fossil (kg Sb-eq)	6.92E-5
Abiotic Depletion, fossil (MJ)	657
Total Waste Disposed (kg)	94.2
Consumption of Freshwater (m ³)	2.40
Product Components: natural aggregate (ASTM C33), Portland cement (ASTM C150), fly ash (ASTM C618), batch water (ASTM C1602), admixture (ASTM C494), admixture (ASTM C260)	

Additional detail and impacts are reported on page three of this EPD

Life cycle stages and the scope of an EPD

- **A1 – Raw Material Supply** covers the **extraction** and **processing** of raw materials used in the production of asphalt or concrete mixes.
- **A2 – Transportation** involves the transportation of raw materials from their **source to the manufacturing site**.
- **A3 – Manufacturing** includes the actual **production process of mixing**, encompassing all activities within the plant.



Why require EPDs? - Minnesota “Buy Clean” Law

- The 2023 Legislative Session created a “Buy Clean” law that requires MnDOT to establish a process to incorporate Environmental Product Declarations (EPDs) into our procurement process. An EPD documents several embodied environmental impacts of a product include carbon dioxide equivalent. The Department of Administration is required to put their process in place by January of 2026. MnDOT has until January 2028 to create our process. Currently the materials included are steel, glass, concrete mixtures and asphalt mixtures. Other products are likely to be added in the future.

**Transportation Materials,
Towards Net Zero**



(2062) Environmental Product Declaration (EPD) Special Provision

S-2

(2062) ENVIRONMENTAL PRODUCT DECLARATION (EPD)

NEW 12/19/2025 ◀DO NOT REMOVE THIS DATE. IT NEEDS TO STAY IN FOR THE CONTRACTORS.

Use this special provision when the project meets any of the following criteria. Contact Emil Bautista, Office of Materials and Road Research, to determine the number of EPDs that will be required on this project.

- New construction, rehabilitation, mill and overlay, or reconstruction of two or more lane-miles of a trunk highway pavement.
- New construction or re-decking with a total bridge deck quantity of 6000 square feet or more.
- ADA projects with a minimum of more than 1 intersection in the project

SP2025-XX

S-2.1 DESCRIPTION

This Work consists of submitting Type III Environmental Product Declarations (EPDs) in accordance with S-1 (1603) Materials: Specifications, Samples, Tests, and Acceptance (EPD). These EPDs are Cradle-to-Gate, including life cycle stages A1 to A3: raw material supply, transport to the manufacturing site, and manufacturing.

S-2.2 MATERIALS - BLANK

S-2.3 CONSTRUCTION REQUIREMENTS
Provide EPDs for the following materials:

Table SP2062.3-1
Materials Requiring EPDs

Spec No.	Description	Minimum Project Quantity	EPDs Required Frequency	Estimated EPDs per Material
2301	Concrete Pavement	3,500 cubic yards	1 per mix design	4
2301	Dowel Bar	No minimum	1 per diameter	1
2301	Supplemental Pavement Reinforcement	No minimum	1 per source	1
2301	Drill & Grout Reinf Bar (Epoxy Coated)	No minimum	1 per source	1
2301	Reinforcement Bars (Incidental)	No minimum	1 per source	1
2360	Plant Mixed Asphalt Pavement	1000 tons	1 per mix design	2 to 3
2363	PASSRC and PASB	1000 tons	1 per mix design	1
2401	Concrete Bridge Construction	500 cubic yards	1 per mix design	3 to 5
2401	Reinforcement Bars	No minimum	1 per source	1
2401	Reinforcement Bars (Epoxy Coated)	No minimum	1 per source	1
2402	Steel Bridge Construction	No minimum	1 per source	3
2521, 2531	Walks and Concrete Curbing	500 cubic yards	1 per mix design	2
2521	Drill & Grout Reinf Bar (Epoxy Coated)	No minimum	1 per source	1
2533	Concrete Median Barriers	500 cubic yards	1 per mix design	2

Provide Type III Cradle-to-Gate EPDs meeting ISO standards ISO 21930, ISO 14025 and ISO 14040/44. Use product specific supply chain data, including an EPD for upstream cement or asphalt cement production for concrete and bituminous mixtures mix-design specific EPDs. Use industry average values when product specific supply chain data does not exist. Cradle-to-gate EPDs report on the production stage of the life cycle, encompassing A1 to A3 modules: raw material extraction, transportation to the plant, and manufacturing processes. When providing the Mix Name for the EPD, comply with the following mix naming conventions:

- (1) Bituminous mixtures – Mix Number and MDR number (e.g., SPWEB340_PG58H-34, 0-2025-999)
- (2) Concrete mixtures – Mix Number and RM, JMF, or PS Sheet Number (e.g., 3F52F, RMX999-999)

Notify the Engineer, prior to the preconstruction meeting, when a source does not have 12 months of data to support development of the EPD.

Produce EPDs files in Portable Document Format (PDF) or OpenEPD JavaScript Object Notation (JSON) Format using the following naming convention SP_Number_Pay Item Name_Mix Name_EPd.pdf. (e.g., SP1234-568_Bridge Slab Concrete_3YHPC-S_JMF25-999_EPd.pdf or SP1234-568_Reinforcement Bars_EPd.pdf.)

Submit Type III EPDs per source and location as shown in in Table SP2062-1, with the associated delivered quantities, in twelve weeks or less of completion of final installation of the Contract item to the Engineer and to epd.mn.dot@state.mn.us. Include the SP Project number, and when applicable, the MnDOT Mix ID for the concrete and asphalt mixtures in the subject line.

S-2.4 METHOD OF MEASUREMENT

The Engineer will measure Environmental Product Declaration by the number of Environmental Product Declarations, as shown in Table SP2062-1, submitted for each unique material and mix design.

S-2.5 BASIS OF PAYMENT

The Contract Unit Price for Environmental Product Declaration is compensation in full for developing and supplying the EPDs for the Materials required to complete the Work. The Engineer will pay for that EPD once per Contract when the same EPD is used for more than one pay item. The Engineer may pay for additional EPDs needed to complete the Work.

The Department will pay for Environmental Product Declaration shown in in Table SP2062.3-1 on the basis of the following schedule:

Item No.	Item	Unit
2062.602	Environmental Product Declaration	each

Generic Special Provision - Table SP2062.3-1

Materials Requiring EPDs and the Estimated EPDs needed (Used for Design)

Spec No.	Description	Minimum Project Quantity	EPDs Required Frequency	Estimated EPDs per Material
2301	Concrete Pavement	3,500 cubic yards	1 per mix design	4
2301	Dowel Bar	No minimum	1 per diameter	1
2301	Supplemental Pavement Reinforcement	No minimum	1 per source	1
2301	Drill & Grout Reinf Bar (Epoxy Coated)	No minimum	1 per source	1
2301	Reinforcement Bars (Incidental)	No minimum	1 per source	1
2360	Plant Mixed Asphalt Pavement	1000 tons	1 per mix design	2 to 3
2363	PASSRC and PASB	1000 tons	1 per mix design	1
2401	Concrete Bridge Construction	500 cubic yards	1 per mix design	3 to 5
2401	Reinforcement Bars	No minimum	1 per source	1
2401	Reinforcement Bars (Epoxy Coated)	No minimum	1 per source	1
2402	Steel Bridge Construction	No minimum	1 per source	3
2521, 2531	Walks and Concrete Curbing	500 cubic yards	1 per mix design	2
2521	Drill & Grout Reinf Bar (Epoxy Coated)	No minimum	1 per source	1
2533	Concrete Median Barriers	500 cubic yards	1 per mix design	2

Project Specific - Special Provision

*Example of project specific special provision that identifies which materials require EPDs
(What you would see in the Contract Proposal (Bid Documents))*

**Table SP2062.3-1
Materials Requiring EPDs**

Spec No.	Description	Minimum Project Quantity	EPDs Required Frequency	Estimated EPDs per Material
2301	Concrete Pavement	3,500 cubic yards	1 per mix design	0
2301	Dowel Bar	No minimum	1 per diameter	0
2301	Supplemental Pavement Reinforcement	No minimum	1 per source	0
2301	Drill & Grout Reinf Bar (Epoxy Coated)	No minimum	1 per source	0
2301	Reinforcement Bars (Incidental)	No minimum	1 per source	0
2360	Plant Mixed Asphalt Pavement	1000 tons	1 per mix design	1
2363	PASSRC and PASB	1000 tons	1 per mix design	0
2401	Concrete Bridge Construction	500 cubic yards	1 per mix design	0
2401	Reinforcement Bars	No minimum	1 per source	0
2401	Reinforcement Bars (Epoxy Coated)	No minimum	1 per source	0
2402	Steel Bridge Construction	No minimum	1 per source	0
2521, 2531	Walks and Concrete Curbing	500 cubic yards	1 per mix design	2
2521	Drill & Grout Reinf Bar (Epoxy Coated)	No minimum	1 per source	1
2533	Concrete Median Barriers	500 cubic yards	1 per mix design	0

**4 EPDs
estimated
for this
project**

State of Estimated Quantities (SEQ)

Example of project specific State of Estimated Quantities (SEQ) that identifies the estimated number of EPDs required.

STATEMENT OF ESTIMATED QUANTITIES							SP 0416-55	
							TH 197	
							ROADWAY	CITY UTILITIES
NOTE	SHEET NO.	TAB	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITY	ESTIMATED QUANTITY (A)	ESTIMATED QUANTITY (B)
			2011.601	AS BUILT	LUMP SUM	1	1	
			2016.601	CONTRACT MANAGEMENT	LUMP SUM	1	1	
			2016.601	PUBLIC INFORMATION MANAGEMENT	LUMP SUM	1	1	
			2021.501	MOBILIZATION	LUMP SUM	1	0.98	0.02
			2051.501	MAINT & RESTORATION OF HAUL ROADS	LUMP SUM	1	1	
			2062.602	ENVIRONMENTAL PRODUCT DECLARATION	EACH	4	4	

(2062) Environmental Product Declaration (EPD) – Pay Item

Method of Measurement

- Measured by number of EPDs submitted per unique material and mix design

Basis of Payment

- Paid once per Contract per EPD (even if reused)
- Additional EPDs may be compensated if needed

Item No.	Item	Unit
2062.602	Environmental Product Declaration	each

Future

- Pay items will likely be phased out
- There will be a point in time where no EPD = no payment for the material
- There will be limits on GWP and a possible incentive structure for lower GWPs

Concrete Mix EPDs Naming Requirements

Standardize EPD names so mixes can be traced to MnDOT-approved sources

Required Data Fields (must be present):

- **MnDOT Mix Number** (e.g., RM051)
- **Corresponding Sheet Number** (RMX / RMS / JMF / PS — must match supplier sheet ID)
- **MnDOT Grade** (A, B, F, etc.)
- **Supplying Plant Location** (must match the plant that produced the mix)

Concrete Mix EPDs Naming Requirements

ENVIRONMENTAL IMPACTS

Declared Product:

Mix 3F32CF • Childs Road Plant

Description: 4500, 3/4 GV, AE, CD

Compressive strength: 4500 PSI at 28 days

ENVIRONMENTAL IMPACTS

Declared Product:

Mix 3A21-RGMC • ROGERS READY-MIX Plant

Description: RM-051 JMF 24-192 Grade A

Compressive strength: 3900 PSI at 28 days

Generic EPD (shown above):

MnDOT Required Format — Description field (shown above):

- MixNumber, SheetNumber, Grade X

Examples:

- RM051, JMF24-192, Grade A
- RM205, RMX205-###, Grade F

Submission Requirements

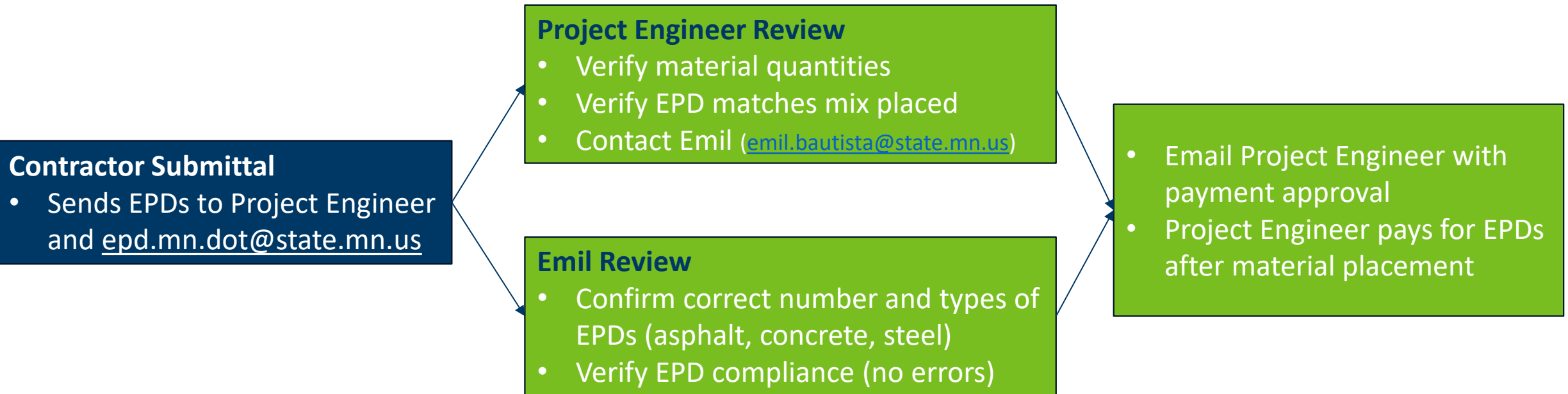
Submit EPDs

- One per source and location (Table SP2062-1)
- Include associated delivered quantities
- Due within 12 weeks of final installation
- Send to Engineer and epd.mn.dot@state.mn.us

Email Submission Details

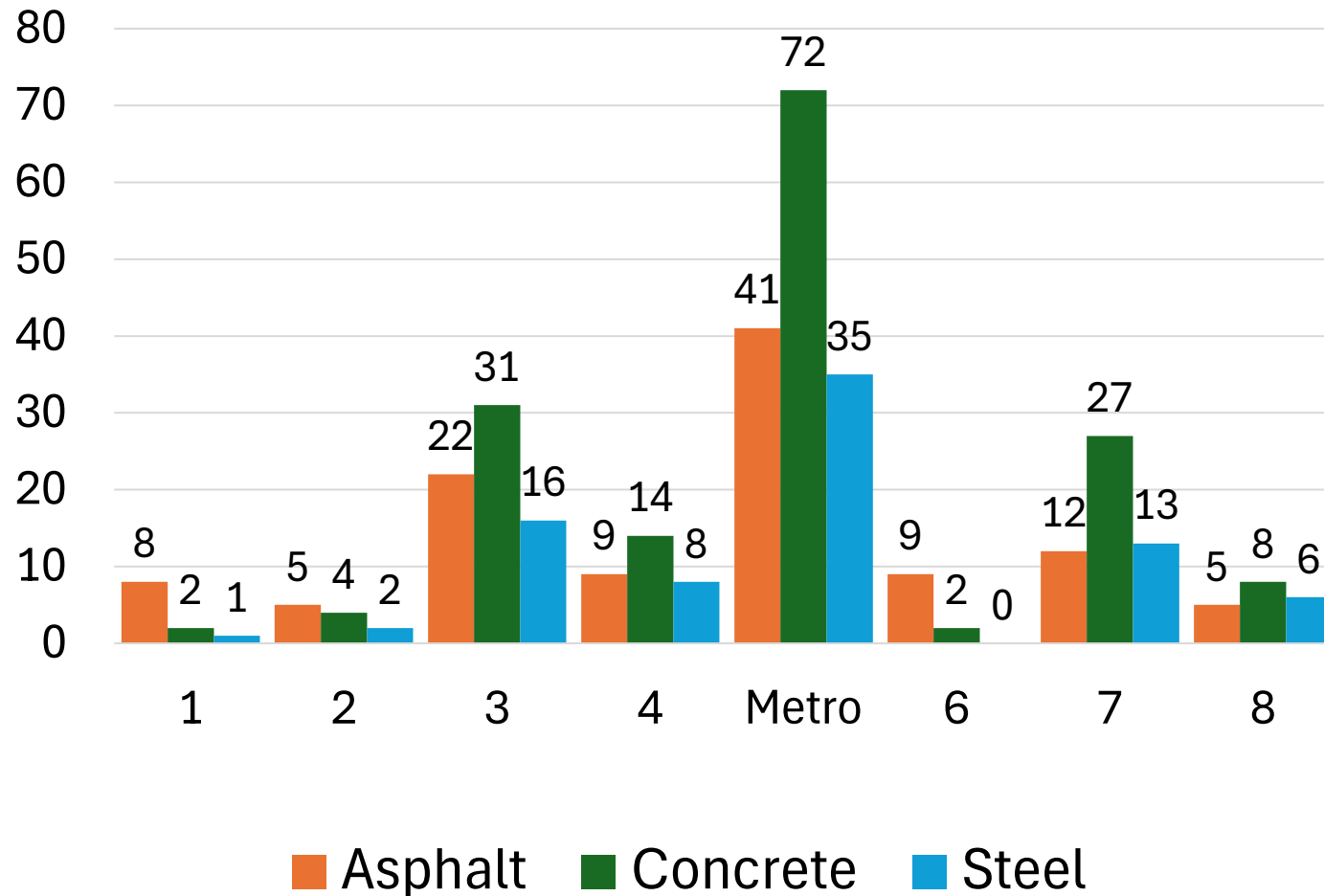
- Email subject line must include:
 - SP Project Number
 - MnDOT Mix ID (when applicable for asphalt or concrete mixtures)

EPD Project Requirements



MNDOT Collection of EPDs – January 2026 to May 2027 Lettings

EPDs Required



District	Number of Projects	Total EPDs
1	5	11
2	5	11
3	12	69
4	4	31
Metro	19	148
6	4	11
7	7	52
8	5	19
Total	61*	352

* 38 more projects being evaluated

Support in Generation of EPDs

- Direct questions to...
- *Emil Bautista, MnDOT Sustainability Engineer*
- *Maria Masten or Matt Herbst, MnDOT Concrete Engineering Unit*
- *John Cunningham, Aggregate and Ready-Mix Association of MN*
- *Dan Labo, Concrete Paving Association of MN*