

GENERAL POLICY AND PROCEDURE

DEPARTMENT OF PUBLIC SERVICE
DIVISION OF INFRASTRUCTURE MANAGEMENT
CITY OF COLUMBUS, OHIO

SUBJECT: Non-Residential Street Pavement Design	EFFECTIVE DATE: May 11 th , 2026
BY: Kelly Scocco	PAGES: 7 (including exhibits A & B) EXHIBITS: A & B

I. Applicability

This policy shall be applicable to the design of all Non-Residential streets and Special Transportation Networks (Truck Routes and Transit), as defined in Department of Public Service Design Memo 3.01, in the City of Columbus, regardless of the owner, developer, or City Agency. Refer to the Residential Street Pavement Design policy for guidance on alleys and Local (Residential) streets.

II. Effective Date

This policy shall be effective May 11th, 2026 and shall apply to all non-residential roadway engineering drawings submitted to the Public Service Department as of the effective date of this policy.

III. Limitation on Use

A. The use of multiple pavement types for any one class of roadway is not permitted in any segment of a given non-residential street improvement project, unless directed by the Pavement Program Engineer. A street segment is defined by the limits of the proposed project.

B. The City of Columbus reserves the right to vary from this policy where it benefits the City of Columbus, in consideration of testing new products, techniques, or materials.

IV. Definitions

A. Stabilized Subgrade - A 12-inch thick stabilized subgrade in accordance with CMSC Item 206 Chemically Stabilized Subgrade where credit of the strengthened subgrade is accounted for in the pavement design in accordance with the ODOT Pavement Design Manual (PDM).

V. Standard Detail Drawings

The pavement thicknesses associated with the following City of Columbus Standard Drawings shall be designed according to the provisions within this policy:

2105 26' Section (Non-Residential) Combination Curb & Gutter, Type Special 8"

2111 32' Section (Non-Residential) Combination Curb & Gutter, Type Special 8"

2116 36' Section (Non-Residential) Combination Curb & Gutter, Type Special 8"

2130 Widening Uncurbed Section, Side Ditch

2135 Uncurbed Section, Side Ditch

All non-residential pavements as applicable through this policy shall be designed according to the provisions herein.

VI. Pavement Design

A. Through this policy, the City of Columbus specifies that pavement designed for non-residential streets must use AASHTO equations. The methodology employed by the Ohio Department of Transportation, Office of Pavement Engineering is preferred. Other pavement design software programs may be utilized after review and approval by the Pavement Program Engineer. Except for minor roadway projects as outlined in Section VIII herein or as determined by the Long Range Planning Section Manager, no standard pavement cross-sections will be provided in substitution for pavements designed specifically for each project.

B. For typical projects, pavement sections may be designed using the four basic paving materials; aggregate, roller-compacted concrete (RCC), Portland cement concrete (PCC), and asphalt concrete. Pavement sections designed using roadway pavers (Supplemental Specification 1524) or permeable paver pavement (Supplemental Specification 1525) sections may be considered with prior approval from the City. The designer may vary the subgrade strength when designing roadway pavements, including the use of stabilized soils, providing the requirements of Sections VII and VIII below are met.

VII. Additional Pavement Design Requirements

City streets applicable under the requirements of this policy shall be designed based on Average Daily Traffic (ADT) projections for a 30 year design period. Refer to the current ODOT PDM for guidance to determine the design period traffic loading. With the exception of projects noted in Section VI, all pavement designs shall be based upon an in-situ subgrade soils investigation performed by a qualified Geotechnical Engineering consulting firm and licensed professional engineer in the State of Ohio.

VIII. Pavement Type Selection

A. Pavement Selection Committee (PSC)

The PSC shall be designated by the Public Service Director. The PSC shall consist of the Construction Section Assistant Administrator, Design Section Assistant Administrator, Long Range Planning Section Manager and Pavement Program Engineer. Three members of the committee are required for selections. The PSC responsibility shall be to review and recommend project pavement sections to the Public Service Director for project pavement design approval. In the case of Capital Improvement Projects, the Public Service Director shall select the pavement section prior to the Stage 1 submission. The standard process to select the pavement design for a non-residential street considered a major roadway project is attached as Exhibit A.

B. Major Roadway Projects (CIP and 3P)

Major roadway projects on non-residential streets which (1) involve adding through traffic lanes, (2) replace or reconstruct existing through lanes or (3) exceed the limits of a minor roadway project shall meet all of the requirements of this policy. A Geotechnical Engineer licensed in the State of Ohio shall perform a geotechnical analysis of subgrade soils on all major roadway projects. The PSC shall review and recommend pavement selections for all major roadway projects for non-residential streets based on pavement alternatives designed by the consultant. The pavement design alternatives included in the pavement design package shall consist of a flexible pavement section and a composite pavement

section. A concrete pavement section should also be included when heavy truck traffic or high stress pavement conditions are anticipated. The City of Columbus reserves the right to require the use of City derived material unit prices in cost estimates when in the City's best interest. Only Ohio Registered Professional Engineers may prepare pavement designs and cost estimates. In addition to City Capital Improvement projects, all major roadway project pavements developed under a Public Private Partnership (public funds are involved) shall be selected in accordance with this policy (also noted in Exhibit A).

C. Major Roadway Projects (Private Development Process)

For a fully privately funded major roadway project that is to be dedicated to the City of Columbus, the developer's engineer shall submit a pavement design based on AASHTO equations to One Stop Shop, who will coordinate with the Pavement Program Engineer as noted in Exhibit A. The limits of Major Roadway Projects associated with private development projects shall be determined at the Preliminary Site Development Review.

The consultant shall provide design year average daily traffic (ADT) volumes for each street segment in the proposed project with the pavement design package for review and approval prior to the initial submission of E-plans. The ADT volumes shall be submitted on an exhibit showing the proposed improvements to the roadway segment. ADT volumes shall represent future ADT for a 30 year pavement design. Streets connecting to proposed major roadway projects, planned and future roadways shall include full build-out traffic volumes from those adjoining roadways. The distribution of these ADT volumes shall also be indicated on the exhibit.

D. Minor Roadway Projects (CIP, 3P and Private)

In the case of proposed street improvements resulting in minor roadway projects (e.g. turn lane addition, minor lane widening, or radii improvements), geotechnical soils investigations are not required. In most cases the pavement composition for such minor roadway projects shall match the existing adjacent pavement materials composition. It may be necessary to obtain pavement cores to determine the adjacent existing pavement section thickness. Pavement calculations may be required as directed by the Pavement Program Engineer.

An approved pavement design is required for minor lane widenings that will carry the mainline through traffic.

If a pavement design is required, the pavement section shall be designed assuming soil with a California Bearing Ratio (CBR) of 4 or match existing pavement section, whichever is the greater resultant pavement section.

E. Underground Utility Projects

Pavement designs for isolated utility crossings are not required. However, all underground utility projects with non-residential street construction improvements that exceed the intent of Standard Drawing 1441 shall meet the pavement design standards of this policy.

F. Pavement Selection Factors

Factors to be considered in the pavement selection process include: Initial Cost, Constructability and Maintenance of Traffic, and Design Issues. These factors shall be addressed in the pavement design package submitted by the consultant. The various pavement alternatives will be evaluated by the PSC based on these factors. The City

reserves the right to consider other factors that may be in the best interest of the City, such as the composition of the adjacent existing pavement sections.

IX. Roadway Paver Pavement Design

The use of roadway pavers in accordance with Supplemental Specification 1524 Roadway Pavers must receive prior approval from the City of Columbus during the project scoping phase. The pavement design shall use ODOT's Rigid Pavement Design methodology for composite pavements. Once the required thickness is determined, the concrete thickness is reduced by 1 inch and replaced with the bituminous setting bed and pavers. For a roadway paver section, the minimum thickness for the Item 305 Concrete Base is 8 inches over 6 inches of Item 304 Aggregate Base.

X. Permeable Paver Pavement Structural Design ("Protected" Parking Lanes Only)

Permeable paver design and construction shall be in accordance with City of Columbus, Supplemental Specification 1525 Permeable Paver Pavement and the accompanying Design Guidance for Pervious Pavement Utilizing Permeable Pavers document. For non-residential streets applicable under this policy, permeable paver sections will only be considered for "protected" parking lanes not subject to mainline traffic. "Protected" means that the lane has curb-extensions or other features that preclude it from becoming a through-lane in the future. The use of permeable paver pavement systems must receive prior approval from the City of Columbus during the project scoping phase. See the Design Guidance document for the minimum structural build up thickness. The hydraulic design is not reviewed as part of this policy and shall be reviewed and approved by the Department of Public Utilities, Division of Sewage and Drainage.

XI. Soil Stabilization

A. "Soil-Stabilized Subgrade" Pavement Design.

If the CMSC Item 206 Chemically Stabilized Subgrade pavement design alternative has been chosen and approved for a project during the Design Phase, credit of the strengthened subgrade is accounted for in the pavement design in accordance with the ODOT PDM. The City must approve this pavement design alternative for private development projects (fully private or Public Private Partnership).

B. If during the Construction Phase it becomes necessary for the Contractor to modify/stabilize the soil in order to aid subgrade compaction by drying out wet areas, and improve the working platform, no reduction in the pavement design shall be permitted

XII. Construction and Materials Specifications-Columbus (CMSC)

All pavements designed under this policy shall be in accordance with material specifications of the current CMSC and all City Supplements and Supplemental Specifications. See Exhibit B for additional design information.

APPROVED BY:

Kelly Scooco
DIRECTOR

4-20-26
DATE

**City of Columbus Pavement Selection Steps
Major Roadway Projects**

1. As part of the scoped pavement design, the consultant schedules and performs geotechnical investigations, non-destructive deflection testing and coring, and research of pavement history as appropriate. Consultant coordinates with Division of Design and Construction Project Manager (PM), who confers with Pavement Program Engineer (PPE), to verify alternatives and confirm development of a major rehabilitation project. If minor rehabilitation is determined to be appropriate, pavement treatment will not require approval of Pavement Selection Committee (PSC).
2. Consultant designs pavement alternatives as specified in this policy, calculates project quantities and provides pavement selection factors (initial cost, constructability, design concerns, etc.) which is summarized in a pavement design package. Unit prices are subject to approval by the PM. A Life-Cycle Cost Analysis per the ODOT Pavement Design and Rehabilitation Manual is not required.
3. Consultant submits pavement design package to PM for review by PPE. PPE reviews package for completeness and acceptability. Any comments are provided to PM.
4. Once the pavement design package has been approved by the PPE, the PM distributes the pavement design package to PSC members for review and schedules the PSC meeting.
5. PSC meets to discuss all the alternatives and selects a recommended pavement alternative. The PM sends the recommendation to the Public Service Director.
6. Public Service Director approves the pavement alternative selection or makes a different selection.
7. PM notifies consultant and PPE of the approved alternative. PPE maintains file of selection documents.

Notes:

- A. For CIP projects, all project submittals shall be in accordance with the current City of Columbus, Division of Design and Construction General Design Requirements in force at the time of scoping.

B. For private development projects the consultant will prepare a pavement design package, including appropriate plan sheets, and submit it to the Chief Plans Official, Engineering Section, Building & Zoning Services Department (One Stop Shop) for approval prior to initial submission of E-plans. The pavement design package will be forwarded by the E-plan reviewer to the Pavement Program Engineer for review of the design. All non-residential roadway engineering drawings shall have a typical section sheet with the pavement design as approved by the Pavement Program Engineer in writing.

**Non-Residential Pavement Design Policy
Materials and Design Specification Standards**

1. Item numbers refer to the latest Columbus Construction and Material Specification (CMSC) section.
2. Refer to the ODOT Pavement Design Manual (PDM) for guidance on chemically stabilized subgrade pavement design.
3. Use asphalt structural coefficient values and rigid pavement design parameters (Item 304, 305, 451, 452) as recommended in the ODOT PDM. CMSC Item 307 Roller Compacted Concrete Base shall use the same rigid pavement design parameters as Item 305.
4. Refer to the ODOT PDM for asphalt lift thickness guidance.
5. Load Transfer Devices
 - a. Load transfer devices are not to be used in concrete pavement (Item 451, 452) with thicknesses of 7 inches and less.
 - b. Load Transfer Coefficients
 - i. Doweled, Edge Support: 2.7
 - ii. Doweled, No Edge Support: 3.2
 - iii. Undoweled, Edge Support: 3.2
 - iv. Undoweled, No Edge Support: 3.8