MPLX LP Form 424B3 March 20, 2019

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PROSPECTUS

MPLX LP

26,926,930 Series A Preferred Units Common Units Issuable Upon Conversion of the Series A Preferred Units

This prospectus relates to up to 26,926,930 Series A Preferred units representing limited partnership interests in MPLX LP, which we refer to as MPLX or we, us or our, and common units issuable upon the conversion of such Series A Preferred units that may be offered for resale by the selling unitholders named in this prospectus. The Series A Preferred units are convertible in whole or in part into common units as set forth in this prospectus. For a more detailed discussion of the selling unitholders, please read "The Selling Unitholders."

The selling unitholders may offer and sell these Series A Preferred units and common units to or through one or more underwriters, dealers or agents, or directly to investors or through any other means described in this prospectus under "Plan of Distribution", in amounts, at prices and on terms to be determined by market conditions and other factors at the time of the offering. This prospectus describes only the general terms of the Series A Preferred units and common units and the general manner in which the Series A Preferred units and common units may be offered by the selling unitholders. We may file one or more prospectus supplements that may describe the specific manner in which the selling unitholders will offer the Series A Preferred units and common units and also may add, update or change information contained in this prospectus.

Each selling unitholder may elect to sell all, a portion or none of the units it offers hereby. Each selling unitholder will determine the prices and terms of the sales at the time of each offering made by such selling unitholder and will be responsible for any brokers' or underwriters' discounts or commissions. We will pay all of the other offering expenses. We will not receive any of the proceeds from any sale of the Series A Preferred units or common units sold pursuant to this prospectus.

You should read this prospectus and any applicable prospectus supplement and the documents incorporated by reference herein or therein carefully before you invest in any of the Series A Preferred units or common units. You should also read the documents we have referred you to in the "Where You Can Find More Information" section of this prospectus for information about us, including our financial statements.

Our common units are listed on the New York Stock Exchange under the symbol "MPLX." The Series A Preferred units are not listed on an exchange or available for quotation on any national quotation system.

Investing in our securities involves risks. Limited partnerships are inherently different from corporations. You should carefully consider the risk factors on page 5 of this prospectus and in any applicable prospectus supplement before you make an investment in our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is March 18, 2019.

TABLE OF CONTENTS

	Page
ABOUT THIS PROSPECTUS	1
WHERE YOU CAN FIND MORE INFORMATION	1
INFORMATION WE INCORPORATE BY REFERENCE	1
DISCLOSURES REGARDING FORWARD-LOOKING STATEMENTS	2
THE COMPANY	5
RISK FACTORS	5
USE OF PROCEEDS	6
SELLING UNITHOLDERS	7
DESCRIPTION OF COMMON UNITS	10
DESCRIPTION OF SERIES A PREFERRED UNITS	12
PROVISIONS OF OUR PARTNERSHIP AGREEMENT RELATING TO CASH DISTRIBUTIONS	15
OUR PARTNERSHIP AGREEMENT	21
MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES	34
STATE, LOCAL, FOREIGN AND OTHER TAX CONSEQUENCES	52
INVESTMENT IN MPLX LP BY EMPLOYEE BENEFIT PLANS	53
PLAN OF DISTRIBUTION	55
LEGAL MATTERS	57
EXPERTS	57
i	

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, using a "shelf" registration process. Using this shelf registration process, the selling unitholders may offer, at any time and from time to time, in one or more offerings, the securities that this prospectus describes. This prospectus provides you with a general description of the securities that the selling unitholders may offer. Any prospectus supplement may also add to, update or change the information contained in this prospectus. Please carefully read this prospectus and any prospectus supplement in addition to the information contained in the documents we refer to under the headings "Where You Can Find More Information" and "Information We Incorporate by Reference."

You should rely only on the information contained or incorporated by reference in this prospectus and in any prospectus supplement or in any free writing prospectus that we may provide you. We and the selling unitholders have not authorized anyone to provide you with different information. We and the selling unitholders take no responsibility for and can provide no assurance as to the reliability of, any other information that others may give you. You should not assume that the information contained in this prospectus, any prospectus supplement, any document incorporated by reference or any free writing prospectus is accurate as of any date, other than the date mentioned on the cover page of these documents. The selling unitholders are not making offers to sell securities in any jurisdiction in which an offer or solicitation is not authorized or in which the person making such offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make an offer or solicitation.

Except as otherwise indicated, references in this prospectus to "MPLX LP," "MPLX," the "Partnership," "we," "us" and "our" to MPLX LP and its consolidated subsidiaries. References in this prospectus to "Marathon Petroleum Corporation," "Marathon Petroleum" or "MPC" refer to Marathon Petroleum Corporation and its consolidated subsidiaries other than MPLX.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational reporting requirements of the Securities Exchange Act of 1934, or the Exchange Act. We file annual, quarterly and current reports and other information with the SEC. The SEC maintains an Internet site that contains information MPLX has filed electronically with the SEC, which you can access over the Internet at http://www.sec.gov. You can also obtain information about MPLX at our website at http://www.mplx.com. We do not intend for information contained on our website to be part of this prospectus, other than documents that we file with the SEC that are incorporated by reference in this prospectus.

This prospectus is part of a registration statement we have filed with the SEC relating to the securities the selling unitholders may offer. As permitted by SEC rules, this prospectus does not contain all the information we have included in the registration statement and the accompanying exhibits and schedules we have filed with the SEC. You may refer to the registration statement, exhibits and schedules for more information about us and the securities. The registration statement, exhibits and schedules are available through the SEC's Internet site.

INFORMATION WE INCORPORATE BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus the information in documents we have filed with it, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is considered to be a part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. Any statement contained in any document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in or omitted from this prospectus or any accompanying prospectus supplement, or in any other subsequently filed document that also is or is deemed to be incorporated by reference herein, modifies or supersedes such statement. Any such statement so modified or

I

superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus. We incorporate by reference into this prospectus the documents listed below and any future filings we make with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (excluding information deemed to be furnished and not filed with the SEC) (1) after the date of the initial filing of the registration statement of which this prospectus forms a part and prior to the effectiveness of the registration statement and (2) after the date of this prospectus until the termination of the offering of the securities:

our Annual Report on Form 10-K for the fiscal year ended December 31, 2018; and

the description of the common units as set forth in MPLX's Registration Statement on Form 8-A (Registration No. 001-35714), filed with the SEC on October 23, 2012 under the Exchange Act, and all amendments or reports filed with the SEC for the purpose of updating such description.

We do not and will not, however, incorporate by reference in this prospectus any documents or portions thereof that are not deemed "filed" with the SEC, including any information furnished pursuant to Item 2.02 or Item 7.01 of our Current Reports on Form 8-K unless, and except to the extent, specified in such current reports.

You may request a copy of these filings, other than an exhibit to these filings unless we have specifically incorporated that exhibit by reference into the filing, at no cost, by writing or telephoning MPLX at the following address:

MPLX LP

200 E. Hardin Street Findlay, Ohio 45840

Attention: Investor Relations Telephone: (419) 421-2414

DISCLOSURES REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents incorporated herein by reference, includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, which we refer to as the "Securities Act," and Section 21E of the Exchange Act. You can identify our forward-looking statements by words such as "anticipate," "believe," "could," "design," "estimate," "expect," "forecast," "goal," "guidance," "imply," "intend," "may," "objective," "opportunity," "position," "potential," "predict," "project," "project," "prospective," "pursue," "seek," "should," "strategy," "target," "will," "similar expressions that convey the uncertainty of future events or outcomes. When considering these forward-looking statements, you should keep in mind the risk factors and other cautionary statements contained in this prospectus and the documents we have incorporated by reference.

Forward-looking statements include, but are not limited to, statements that relate to, or statements that are subject to risks, contingencies or uncertainties that relate to:

the potential merger, consolidation or combination of MPLX with Andeavor Logistics LP, a publicly traded master limited partnership which we refer to as ANDX;

future levels of revenues and other income, income from operations, net income attributable to MPLX, earnings per unit, adjusted EBITDA or distributable cash flow;

the regional, national and worldwide availability and pricing of refined products, crude oil, natural gas, natural gas liquids, which we refer to as NGLs, and other feedstocks;

consumer demand for refined products;

our ability to manage disruptions in credit markets or changes to our credit ratings;

anticipated levels of drilling activity, production rates and volumes of throughput of crude oil, natural gas, NGLs, refined products or other hydrocarbon-based products;

future levels of capital, environmental or maintenance expenditures, general and administrative and other expenses;

the success or timing of completion of ongoing or anticipated capital or maintenance projects;

the reliability of processing units and other equipment;

expectations regarding joint venture arrangements and other acquisitions, including the dropdowns completed by MPC, or divestitures of assets;

business strategies, growth opportunities and expected investment;

the adequacy of our capital resources and liquidity, including but not limited to, availability of sufficient cash flow to execute our business plan and to pay distributions;

the effect of restructuring or reorganization of business components;

the potential effects of judicial or other proceedings on our business, financial condition, results of operations and cash flows;

the potential effects of changes in tariff rates on our business, financial condition, results of operations and cash flows; continued or further volatility in and/or degradation of general economic, market, industry or business conditions; compliance with federal and state environmental, economic, health and safety, energy and other policies and regulations;

our ability to successfully implement our business plans, growth strategy and self-funding model;

capital market conditions, including the cost of capital, and our ability to raise adequate capital to execute our business plan and implement our growth strategy; and

the anticipated effects of actions of third parties such as competitors, or federal, foreign, state or local regulatory authorities; or plaintiffs in litigation.

We have based our forward-looking statements on our current expectations, estimates and projections about our industry and our partnership. We caution that these statements are not guarantees of future performance, and you should not unduly rely on them, as they involve risks, uncertainties, and assumptions that we cannot predict. In addition, we have based many of these forward-looking statements on assumptions about future events that may prove to be inaccurate. While our management considers these assumptions to be reasonable, they are inherently subject to significant business, economic, competitive, regulatory and other risks, contingencies and uncertainties, most of which are difficult to predict and many of which are beyond our control. Accordingly, our actual results may differ materially from the future performance that we have expressed or forecast in our forward-looking statements. Differences between actual results and any future performance suggested in our forward-looking statements could result from a variety of factors, including the following:

volatility or degradation in general economic, market, industry or business conditions;

risks and uncertainties associated with intangible assets, including any future goodwill or intangible assets impairment charges;

availability and pricing of domestic and foreign supplies of natural gas, NGLs and crude oil and other feedstocks; availability and pricing of domestic and foreign supplies of refined products such as gasoline, diesel fuel, jet fuel, home heating oil and petrochemicals;

foreign imports and exports of crude oil, refined products, natural gas and NGLs;

completion of midstream infrastructure by competitors;

midstream and refining industry overcapacity or under capacity;

changes in the cost or availability of third-party vessels, pipelines, railcars and other means of transportation for crude oil, natural gas, NGLs, feedstocks and refined products;

the price, availability and acceptance of alternative fuels and alternative-fuel vehicles and laws mandating such fuels or vehicles;

fluctuations in consumer demand for refined products, natural gas and NGLs, including seasonal fluctuations; changes to the expected construction costs and timing of projects and planned investments, and our ability to obtain regulatory and other approvals with respect thereto;

political and economic conditions in nations that consume refined products, natural gas and NGLs, including the United States, and in crude oil producing regions, including the Middle East, Africa, Canada and South America; actions taken by our competitors, including pricing adjustments and the expansion and retirement of pipeline capacity, processing, fractionation and treating facilities in response to market conditions;

changes in fuel and utility costs for our facilities;

failure to realize the benefits projected for capital projects, or cost overruns associated with such projects; the ability to successfully implement growth opportunities, including strategic initiatives and actions; the ability to realize the strategic benefits of joint venture opportunities;

accidents or other unscheduled shutdowns affecting our machinery, pipelines, processing, fractionation and treating facilities or equipment, or those of our suppliers or customers;

unusual weather conditions and natural disasters;

disruptions due to equipment interruption or failure, including electrical shortages and power grid failures; acts of war, terrorism or civil unrest that could impair our ability to gather, process, fractionate or transport crude oil, natural gas, NGLs or refined products;

state and federal environmental, economic, health and safety, energy and other policies and regulations, including the cost of compliance;

adverse changes in laws, including with respect to tax and regulatory matters;

modifications to earnings and distribution growth objectives;

rulings, judgments or settlements and related expenses in litigation or other legal, tax or regulatory matters, including unexpected environmental remediation costs, in excess of any reserves or insurance coverage;

the suspension, reduction or termination of MPC's obligations under MPLX's commercial agreements; political pressure and influence of environmental groups upon policies and decisions related to the production, gathering, refining, processing, fractionation, transportation and marketing of crude oil or other feedstocks, refined products, natural gas, NGLs or other hydrocarbon-based products;

labor and material shortages;

the ability and willingness of parties with whom we have material relationships to perform their obligations to us; capital market conditions, including an increase of the current yield on our common units, adversely affecting our ability to meet distribution growth guidance;

changes in the credit ratings assigned to our debt securities and trade credit, changes in the availability of unsecured credit, changes affecting the credit markets generally and our ability to manage such changes; and

the other factors described in Item 1A. Risk Factors of our most recent Annual Report on Form 10-K and our other filings with the SEC.

We undertake no obligation to update the forward-looking statements included or incorporated by reference in this prospectus except to the extent required by applicable law.

THE COMPANY

We are a diversified, large-cap master limited partnership formed in 2012 by MPC (as our sponsor) that owns and operates midstream energy infrastructure and logistics assets and provides fuels distribution services. We are engaged in the transportation, storage and distribution of crude oil and refined petroleum products; gathering, processing and transportation of natural gas; and the gathering, transportation, fractionation, storage and marketing of NGLs. Our operations are conducted in the following operating segments: Logistics and Storage, or L&S, and Gathering and Processing, or G&P. Our L&S assets are primarily located in the Midwest and Gulf Coast regions of the United States while our G&P assets are primarily located in the Northeast and Southwest regions of the United States. All of our operations and assets are located in the United States. Our principal executive offices are located at 200 E. Hardin Street, Findlay, Ohio 45840, and our telephone number at that location is (419) 421-2414. On October 1, 2018, MPC completed its acquisition of Andeavor pursuant to the Agreement and Plan of Merger, dated as of April 29, 2018, as amended (the "Andeavor Acquisition"). As a result of the Andeavor Acquisition, MPC controls the general partner of ANDX and beneficially owns a majority of the outstanding common units of ANDX. MPC has disclosed that it is assessing strategic options for MPLX and ANDX, including a potential merger, consolidation or other combination of MPLX and ANDX.

RISK FACTORS

You should carefully consider the specific risks set forth below and under the caption "Risk Factors" in any applicable prospectus supplement and under the caption "Risk Factors" included in our most recent Annual Report on Form 10-K filed with the SEC, in each case as these risk factors are amended or supplemented by subsequent filings we make with the SEC that are incorporated by reference in this prospectus, before making an investment decision. For more information, see "Where You Can Find More Information" and "Information We Incorporate By Reference." The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties that are not yet identified may also materially harm our business, operating results and financial condition and could result in a complete loss of your investment.

Risks Related to the Series A Preferred Units

The Series A Preferred units are subordinated to our existing and future debt obligations, and your interests could be diluted by the issuance of additional units, including additional Series A Preferred units or units pari passu to the Series A Preferred units.

The Series A Preferred units are subordinated to all of our existing and future indebtedness (including indebtedness outstanding under our revolving credit facility and our outstanding senior notes). We have significant debt obligations, which totaled \$13.9 billion as of December 31, 2018. We may incur additional debt in future, including under our revolving credit facility, our intercompany loan agreement with MPC or otherwise. The payment of principal and interest on our debt reduces cash available for distribution to us and on our units, including the Series A Preferred units.

The issuance of additional Series A Preferred units or units pari passu with or senior to the Series A Preferred units would dilute the interests of the holders of the Series A Preferred units, and any issuance of such securities or

additional indebtedness could affect our ability to pay distributions on, redeem or pay the liquidation preference on, the Series A Preferred units.

The Series A Preferred units do not have an established trading market and will not be listed on a national securities exchange or available for quotation on any national quotation system.

The Series A Preferred units do not have an established trading market, which may negatively affect their market value and your ability to transfer or sell your Series A Preferred units. Further, the Series A Preferred units are not listed for trading on the New York Stock Exchange or any other national securities exchange or available for quotation on any national quotation system, and we have no intention of listing the Series A Preferred units on any national securities exchange in the future.

The Internal Revenue Service could challenge our treatment of the holders of Series A Preferred units as partners for tax purposes, and if such challenge were sustained, certain holders of Series A Preferred units could be adversely impacted.

The IRS may disagree with our treatment of the Series A Preferred units as equity for federal income tax purposes,

and no assurance can be given that our treatment will be sustained. If the IRS were to successfully characterize the Series A Preferred units as indebtedness for tax purposes, certain holders of Series A Preferred units may be subject to additional withholding and reporting requirements (please read "Material U.S. Federal Income Tax Consequences—Administrative Matters—Additional Withholding Requirements"). Further, if the Series A Preferred units were treated as indebtedness for federal income tax purposes, rather than equity, distributions likely would be treated as payments of interest by us to the holders of Series A Preferred units. Holders of Series A Preferred units are

as payments of interest by us to the holders of Series A Preferred units. Holders of Series A Preferred units are encouraged to consult their tax advisors regarding the tax consequences applicable to the recharacterization of the Series A Preferred units as indebtedness for tax purposes.

Sales by the selling unitholders of Series A Preferred units and common units issuable upon the conversion of the Series A Preferred units that are covered by this prospectus could adversely affect the trading price of our common units.

We are registering for resale an aggregate of 26,926,930 Series A Preferred units held by the selling unitholders and common units issuable upon the conversion of such Series A Preferred units. Such units represent approximately 3.4% of the outstanding common units as of March 1, 2019, assuming conversion on a one-for-one basis. Subject to certain exceptions, we are obligated to keep this prospectus current so that the such Series A Preferred units and common units issuable upon conversion thereof can be sold in the public market at any time. The resale of all or a substantial portion of such Series A Preferred units or common units in the public market, or the perception that these sales might occur, could cause the market price of our common units to decrease and may make it more difficult for us to sell our equity securities in the future at a time and upon terms that we deem appropriate.

USE OF PROCEEDS

We will not receive any proceeds from the sale of Series A Preferred units or common units by the selling unitholders.

SELLING UNITHOLDERS

This prospectus covers the offering for resale from time to time, in one or more offerings, of up to 26,926,930 Series A Preferred units by the selling unitholders and common units issuable upon conversion of such Series A Preferred units.

The selling unitholders (or certain of their affiliates) acquired the Series A Preferred units from us on May 13, 2016 pursuant to a Series A Preferred Unit Purchase Agreement, dated as of April 27, 2016, among us and initial purchasers of the Series A Preferred units, which we refer to as the Series A Purchase Agreement. We are registering the offering by the selling unitholders of the Series A Preferred units and common units described below pursuant to a Registration Rights Agreement, dated as of May 13, 2016, which we refer to as the Registration Rights Agreement, entered into in connection with the closing of the sale and issuance of the Series A Preferred units pursuant to the Series A Purchase Agreement. The Series A Purchase Agreement and the Registration Rights Agreement are filed as exhibits to the registration statement of which this prospectus forms a part.

This prospectus covers the offering for resale of up to 26,926,930 Series A Preferred units and common units issuable upon conversion of such Series A Preferred units by the selling unitholders, subject to any appropriate adjustment as a result of any subdivision, split, combination, or reclassification of the Series A Preferred units or common units. For a description of the terms upon which the Series A Preferred units may convert into common units, please read "Description of the Series A Preferred Units—Conversion of Series A Preferred Units."

No offer or sale may be made by a unitholder unless that unitholder is listed as a selling unitholder in the table below. Additional selling unitholders may be added from time-to-time in a supplement to this prospectus to the extent necessary to reflect the transfer of units and assignment by one or more selling stockholders of its rights under the Registration Rights Agreement, but solely to the extent permitted under the Registration Rights Agreement. The selling unitholders may sell all, some or none of the Series A Preferred units or common units covered by this prospectus. Please read "Plan of Distribution." We will bear all reasonable costs, fees and expenses incurred in connection with the registration of the Series A Preferred units and common units offered by this prospectus. Brokerage commissions and similar selling expenses, if any, attributable to the offering and sale of the Series A Preferred units and common units will be borne by the selling unitholders.

No sales of Series A Preferred units or common units may occur pursuant to this prospectus unless the registration statement of which this prospectus forms a part has been declared effective by the SEC and remains effective at the time such selling unitholder offers or sells such units. We are required to update this prospectus to reflect material developments in our business, financial position and results of operations.

The following table and related notes sets forth information relating to the selling unitholders based on information supplied to us by the selling unitholders. The selling unitholders may hold or acquire at any time Series A Preferred units or common units in addition to those offered by this prospectus and may have acquired additional or sold, transferred or otherwise disposed of some or all of their Series A Preferred units or common units since the date on which the information reflected herein was provided to us. In addition, the selling unitholders may in the future acquire additional or sell, transfer or otherwise dispose of some or all of their Series A Preferred units or common units in transactions exempt from or not subject to the registration requirements of the Securities Act.

The beneficial ownership percentages presented below are based on the total number of Series A Preferred units outstanding as of March 1, 2019.

Name of Selling Unitholder	Number of Series A Preferred Units Beneficially Owned	Percenta of Series A Preferre Units Benefic Owned	A d	Number of Series A Preferred Units That May be Offered	Number of Series A Preferred Units Beneficially Owned Following Resale	Percentage of Series A Preferred Units Beneficially Owned Following Resale
Stonepeak Finland SPV LLC (1)	17,696,160	57.5	%	17,696,160		
Magnetar Structured Credit Fund, LP ⁽²⁾	128,075	*		128,075		
MTP Energy Master Fund Ltd. (2)	2,155,565	7.0	%	2,155,565	_	_
MTP Energy Opportunities Fund II LLC ⁽²⁾	2,673,491	8.7	%	2,673,491	_	_
MTP EOF II IP LLC ⁽²⁾	514,170	1.7	%	514,170	_	_
Series VI, a series of Astrum Partners LLC ⁽²⁾	145,255	*		145,255	_	
MTP Energy MP LLC ⁽³⁾	652,869	2.1	%	652,869	_	
Triangle Peak Partners II, LP ⁽⁴⁾	93,714	*		93,714	_	_