MOODY NATIONAL REIT II, INC. SUPPLEMENT NO. 2 DATED MAY 9, 2019 TO THE PROSPECTUS DATED APRIL 26, 2019

This document supplements, and should be read in conjunction with, our prospectus dated April 26, 2019, as supplemented by Supplement No. 1 dated April 26, 2019, relating to our offering of up to \$990,000,000 in shares of our common stock. Terms used and not otherwise defined in this Supplement No. 2 shall have the same meanings as set forth in our prospectus. The purpose of this Supplement No. 2 is to disclose:

• our acquisition of a hotel property located in Houston, Texas.

Acquisition of a Hotel Property in Houston, Texas

Property Acquisition

On April 29, 2019, or the Closing Date, we assigned to Moody National Kirby-Houston Holding, LLC, a wholly-owned subsidiary of our operating partnership, or Houston Holding, all of our rights to and interests in an Agreement of Purchase and Sale, or the Purchase Agreement, by and between us and RI II MC-HOU, LLC, our affiliate, or Seller, for the acquisition of a hotel property located in Houston, Texas commonly known as the Residence Inn by Marriott Houston Medical Center / NRG Park, or the Medical Center Property.

On the Closing Date, Houston Holding acquired fee simple title to the Medical Center Property from the Seller for an aggregate purchase price, excluding acquisition costs, of \$52,000,000, inclusive of (i) Houston Holding's assumption as of the Closing Date of an existing mortgage loan from American National Insurance Company, or the Lender, secured by the Medical Center Property, with an outstanding balance as of the Closing date of \$28,180,000, or the Existing Loan, and (ii) financing from the Seller in the amount of \$22,900,000, or the Seller Loan. See below for an additional discussion of the Existing Loan and the Seller Loan. In connection with the acquisition of the Medical Center Property, our advisor earned an aggregate acquisition fee of \$2,002,000 (inclusive of a \$1,222,000 contingent acquisition fee paid to reimburse our advisor for upfront selling commissions and dealer manager fees paid by our advisor) and a financing coordination fee of \$290,000.

Description of the Property

The Medical Center Property is a 16-story select-service hotel consisting of 182 guest rooms located in Houston, Texas. The Medical Center Property is located in the Texas Medical Center, the world's largest medical center, and is located adjacent to NRG Park area. The Medical Center Property includes a four and a half story structured parking garage. Property amenities includes an indoor pool, breakfast area, 4,028 square feet of meeting space, business center, fitness center, guest laundry, wireless high-speed internet and a full kitchenette in each guest suite.

The Medical Center Property faces competition from similarly situated properties in and around its submarket. We believe that the Medical Center Property is suitable for its intended purpose and is adequately covered by insurance. The Medical Center Property is newly constructed and we have no plans for significant renovation or improvement of the Medical Center Property.

Leasing and Management of the Property

Houston Holding leases the Medical Center Property to Moody National Kirby-Houston MT, LLC, or the Master Tenant, an indirect, wholly-owned subsidiary of our operating partnership, pursuant to a Hotel Lease Agreement between Houston Holding and the Master Tenant, or the Hotel Lease. The Hotel Lease provides for a ten-year lease term; provided, however, that Houston Holding may terminate the Hotel Lease upon 45 days prior written notice to the Master Tenant in the event that Houston Holding contracts to sell the Medical Center Property to a non-affiliated entity, effective upon the consummation of such a sale of the Medical Center Property. Pursuant to the Hotel Lease, the Master Tenant will pay an annual base rent of \$4,400,000 per year for the first five years of the term of the Hotel Lease. The annual base rent paid by the Master Tenant will be adjusted as set forth in the Hotel Lease beginning in year six of the lease term. In addition, the Master Tenant will pay an annual percentage rent, to the extent that such percentage rent is greater than the base rent due for such period, in an amount equal to (1) a percentage of the Medical Center Property's gross revenues for the previous year (as set forth in the Hotel Lease), minus (2) the amount of the annual base rent paid for the previous year. The annual percentage rent will be adjusted as set forth in the Hotel Lease beginning in year six of the lease term.

Moody National Hospitality Management, LLC, our affiliate, or the Property Manager, manages the Medical Center Property pursuant to a Hotel Management Agreement between the Property Manager and the Master Tenant, or the Management Agreement, which Management Agreement was assigned to Master Tenant by Seller on the Closing Date. Pursuant to the Management Agreement, the Master Tenant pays the Property Manager a monthly base management fee in an amount equal to 4.0% of the Medical Center

Property's gross operating revenues (as defined in the Management Agreement) for the previous month. Each month during the term of the Management Agreement and for one month following the termination of the Management Agreement, the Property Manager will also receive a \$2,500 fee for providing centralized accounting services, which accounting services fee will be subject to annual increases based upon increases in the consumer price index. In addition, the Property Manager will receive a monthly revenue management services fee of \$1,200. The Property Manager will also be eligible to receive additional fees for technical, procurement or other services provided by the Property Manager at the request of the Master Tenant. The Management Agreement has an initial ten-year term, and thereafter will automatically renew for four consecutive five-year terms unless the Property Manager or the Master Tenant provides written notice of termination at least 180 days prior to the end of the then-current term.

Property Financing

Existing Loan

On the Closing Date, pursuant to an Assignment and Assumption Agreement, Houston Holding assumed all of the Seller's rights, duties and obligations under and with respect to the Existing Loan and all loan documents associated therewith, including, without limitation, (i) a Promissory Note, dated September 13, 2017, in the original principal amount of \$29,100,000, evidencing the Existing Loan and payable to the Lender, or the Note, (ii) the Construction Loan Agreement, dated September 13, 2017, between the Seller and the Lender, or the Loan Agreement, and (iii) the Deed of Trust, Security Agreement and Financing Statement, dated September 13, 2017, for the benefit of Lender, securing payment of the Note, or the Deed of Trust.

The Existing Loan bears interest at a rate of 5% per annum. Payments of interest only will be due on the Existing Loan on a monthly basis through October 1, 2019, and thereafter equal monthly payments of principal and interest in the amount of \$170,115.70 will be due. Upon and during any event of default by Houston Holdings under the Note, the Loan Agreement or any other loan document relating to the Existing Loan, the Existing Loan will bear interest at a rate per annum equal to the lesser of the maximum rate permitted by applicable law and 17%. The entire outstanding principal balance of the Existing Loan and all accrued interest thereon and all other amounts payable under the Note is due and payable in full on October 1, 2024. Houston Holding may not prepay the Existing Loan, in whole or in part, prior to November 1, 2021. Thereafter, upon at least 30 but not more than 90 days prior written notice to the Lender, Houston Holding may prepay the outstanding principle balance, plus all accrued interest and other amounts due, in full (but not in part), provided that such prepayment will be subject to certain additional prepayment fees as set forth in the Note.

The Note provides for customary events of default, including failure by Houston Holding to pay when due and payable any amounts payable under the terms of the Note. Upon any event of default by Houston Holding, Lender may accelerate the maturity date of the Loan and declare the entire unpaid principal balance of the Loan and all accrued and unpaid interest thereon due and payable in full immediately, and exercise any other rights available to it under law or equity.

The performance of the obligations of Houston Holding under the Existing Loan is secured by, among other things, a security interest in the Medical Center Property and other collateral granted to the Lender pursuant to the Deed of Trust. Pursuant to payment and completion guaranties in favor of the Lender, Brett C. Moody has agreed to irrevocably and unconditionally guarantee the prompt and unconditional payment to the Lender and its successors and assigns of all obligations and liabilities of Houston Holding for which Houston Holding may be personally liable with respect to the Existing Loan.

Seller Loan

On the Closing Date, our operating partnership issued a promissory note payable to Seller in the original principal amount of \$22,550,000, evidencing the Seller Loan, or the Seller Note. The Seller Loan bears interest at a rate per annum equal to the lesser of the maximum rate permitted by applicable law and 3%. Any amounts payable under the Seller Note which are not paid by our operating partnership when due will bear interest at a past due rate equal to the lesser of the maximum rate permitted by applicable law and 18%. On the Closing Date, our operating partnership made a principal payment of \$7,824,082, and beginning on May 15, 2019 and ending on October 15, 2019, our operating partnership will make a monthly principal payment of \$2,000,000. The entire outstanding principal balance of the Seller Loan, together with all accrued interest thereon and all other amounts payable under the Seller Note, is due and payable in full on December 15, 2019. If our operating partnership fails to make when due any payment under the Seller Note, our operating partnership will pay to Seller on demand a late fee equal to 5% of the amount of such payment. Upon at least five days prior written notice to the Seller, our operating partnership may prepay the outstanding principle balance, plus all accrued interest and other amounts due, in whole or in part, without penalty.

The Seller Note provides for customary events of default, including failure by our operating partnership to pay when due and payable any amounts payable under the terms of the Seller Note. Upon any event of default by our operating partnership, Seller may accelerate the maturity date of the Seller Loan and declare the entire unpaid principal balance of the Seller Loan and all accrued and unpaid interest thereon due and payable in full immediately, and exercise any other rights available to it under law or equity.