

TOWNSHIP OF MARLBORO
2021 PAVEMENT MANAGEMENT PROGRAM

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BACKGROUND

The Township of Marlboro has over 200 miles of roadways, not including those maintained by Monmouth County and the State of New Jersey such as Route 520, Route 79, Tennent Road, Route 9 and Route 18. Township roadways include primary or collector roads defined as those that collect traffic from local roads and feed major highways, and low volume secondary roads which typically receive less traffic and primarily serve local traffic. The collector roadways are depicted on a map included as **EXHIBIT A**.¹

The Township maintains a detailed six (6) year capital program and updates it on an annual basis. The bulk of the projects in the plan are targeted for improvements to infrastructure, the most significant of which is road improvements.

The common understanding of road paving is the process of putting new asphalt on top of existing roadway surfaces in need of repair, analogous to installing a second layer of shingles on top of the original roof on your home. However, an effective Pavement Management Program is one which utilizes a broad range of strategies to maintain and improve roadways. This includes basic maintenance using pothole repair and crack sealing. It also incorporates road resurfacing, in which the road is milled or scraped free of two inches of old roadway and debris prior to the application of new asphalt. In more extreme cases, a more extensive reconstruction of the roadway is required in which up to twelve inches of the surface is removed and multiple layers of aggregate sub base and asphalt are installed. Along with the roadway surface layers, other issues associated with roadway

¹ Note that there are a few roadways including Lloyd Road and Main Street which are partially owned and maintain by different entities. These roads have 'split' jurisdiction but are depicted as solely the responsibility of the non-Township entity on the map.

deterioration, such as curb, ADA-compliant ramps, sidewalk and drainage improvements are addressed as needed. This comprehensive approach, while naturally increasing the costs of the improvements, helps prolong the useful life of the roadway and ultimately represents the most effective use of resources. As a "rule of thumb", a Township road resurfacing project averages more than \$500,000 per mile.

PAVEMENT MANAGEMENT PLAN ROADWAY PRIORITIZATION

Throughout the year, the Department of Public Works (DPW) and Engineering collect data used to develop a list of roadways to be considered for inclusion in the annual capital program. Through a detailed analysis of the roadways, a road program is designed in order to improve and maximize the life of as many roads as possible within the budget allocated.

The Township has adopted the approach that it will simultaneously fund both less intensive types of projects as well as drainage repair and full depth reconstruction projects so that degraded roads can be addressed while pavement is cost-effectively managed to prevent less impacted roads from becoming worse. There is an inverse relationship between pavement degradation and cost. At the low end of the scale, routine roadway maintenance can cost less than \$10 per linear foot and routine road milling and paving in the area of \$95 per linear foot. At the other end, structural improvements and base rehabilitation can exceed \$175 per linear foot.

Bid priorities for the annual road improvement capital program are formulated by DPW and Engineering as follows:

- 1) The Township seeks to identify potential grant opportunities to offset the costs of road improvements. Grants serve to supplement local authorizations for road improvements. For example, State monies may be available through NJDOT Local Aid Grants. The scoring system for these Local Aid Grants gives priority to roadways with higher Average Daily Traffic (ADT). These grants have been used in prior years for collector roads such as Greenwood, Texas, Ryan, Gordons Corner, Union Hill and Vanderburg. Another example includes the Community Development Block Grant (CDBG) program sponsored by the United States Department of Housing and Urban Development (HUD). These Federal monies are targeted to those Federal census districts with a majority of residents classified as low to moderate income. The only census district that currently qualifies for this CDBG funding is the area encompassing the Greenbriar development off of Robertsville Road. The Township has also received several grants through the Federal Emergency Management Agency (FEMA) and regularly makes application to that agency for infrastructure improvement funding.
- 2) A long range planning report prepared for the Township in the mid 2000s is reviewed to reference the Overall Condition Index (OCI) rating of each roadway. This rating is calculated by a computer program based on various inputs established through a physical inspection of each roadway.
- 3) Department of Public Works (DPW) maintenance record data are layered over the long range planning report OCI ratings so that those roads which require the most in-house maintenance resources are weighted accordingly.

- 4) Customer pothole and road maintenance report records are then factored so that those locations receiving the most requests for service are weighted accordingly. Note customer maintenance requests typically trigger DPW work orders for service (refer to 3 above).
- 5) Engineering conducts core sampling on selected roads prioritized following 1-4 above in order to determine the thickness of the existing asphalt and underlying sub base conditions. These pavement cores are utilized to determine whether a roadway needs to receive a mill and overlay (in areas of adequate base course thickness) or a full depth reconstruction (a more intensive project).
- 6) Engineering performs site visits to the roads prioritized following 1-4 above in order to determine what if any ancillary work (curb, ADA-compliant ramps, sidewalk, drainage) is required for each roadway.
- 7) Engineering calculates an estimate for the roads prioritized following 1-6 above and makes a recommendation based upon the available budget allocation.
- 8) Bid specifications and construction plans are prepared with the list of roads recommended in 7 above. The specifications typically include a base list of roads followed by alternate (optional) roads, and are advertised for public bid in accordance with Local Public Contract Law. The base list represents current year priorities estimated by the Engineer with a high degree of confidence to be accomplished within the available budget. Ultimately, the contract is awarded to the lowest responsible bidder for as many of the roads listed in

the specifications (base list plus alternates) as can be accomplished within the available budget. Roads included as bid "alternates" for which funding is not available in the current year's program budget are automatically prioritized for inclusion in the succeeding capital program year.

- 9) Roadways that are not scheduled for repaving in the current year for which service requests have been made are reviewed by DPW and Engineering. Intensive road repair projects which involve milling and resurfacing of partial sections of roadways are formulated by DPW and Engineering, and accomplished using a combination of internal and contracted resources. These **"Mill & Fill"** projects are designed to permanently address an issue that is more limited in scope, or in some instances, accomplish a shorter term repair for purposes of 'bridging' to a future road program.

ROADS COMPLETED 2001-2020

Since 2001, 162 complete and 37 partial roadways have been paved, and since 2009, the Township has authorized the paving of approximately 291,000 linear feet or 55 miles of roadway. The road program continues to reach both local development streets and many major corridors in the Township including:

SPRING VALLEY ROAD (TENNENT ROAD TO OLD BRIDGE)
BUCKLEY ROAD (HH TRAIL TO MOORE ROAD)
MARLBORO ROAD (COUNTY ROUTE 520 NORTH OF NJSH 9)
GORDONS CORNER ROAD (NJSH 18 TO COUNTY ROUTE 520)
RYAN ROAD (ROBERTSVILLE TO MANALAPAN)
UNION HILL ROAD (TENNENT ROAD TO NJSH 9)
GREENWOOD ROAD PHASE I (TENNENT ROAD TO TEXAS)
GREENWOOD ROAD PHASE II (TEXAS ROAD TO ABERDEEN)
TEXAS ROAD PHASE I (SPRING VALLEY TO MOUNTAIN LAUREL ROAD)
TEXAS ROAD PHASE II (GREENWOOD ROAD TO SPRING VALLEY ROAD)

TEXAS ROAD PHASE III (GREENWOOD ROAD TO ABERDEEN)
TEXAS ROAD PHASE IV (SPRING VALLEY ROAD TO NJSH 18)

Barring exceptional circumstances, the roadways (or sections of roadway) paved between 2001 and 2021 are not eligible for repaving or reconstruction under the Pavement Management Program in 2021.

Repaved roadways are maintained through a pothole repair and crack sealing program. As referred to in the "Roadway Prioritization" section above, the cost of maintenance is a fraction of the cost of full depth roadway reconstruction.

The Township has also completed a number of improvements to critical infrastructure to complete sidewalks and address drainage, including:

WYNCREST ROAD AND ROUTE 520 SIDEWALKS
TEXAS ROAD SIDEWALKS AND PEDESTRIAN CROSSWALKS
TAYLOR ROAD DRAINAGE
FRENEAU HEADWALL
RAND COURT HEADWALL
PLEASANT VALLEY ROAD STREAMBANK STABILIZATION
CANADIAN WOODS ROAD (DRAINAGE ONLY)
CLASSIC WAY (DRAINAGE ONLY)
KENSINGTON DRIVE (DRAINAGE ONLY)
GALLYA GROVE (DRAINAGE AND ROAD REPAIR)
CHURCH ROAD / McCUE DRAINAGE IMPROVEMENTS

ROADS SCHEDULED FOR 2021

There are numerous projects in design or under contract for construction work, as summarized in the section below.

The following roadways are under contract and scheduled to be completed during the summer of 2021:

GREENWOOD ROAD PHASE II (TEXAS ROAD TO ABERDEEN) *

* Project partially funded by NJDOT (See "Funding and Financing" below) which may affect schedule

The following roadway stabilization project will be completed in 2021:

NOLAN ROAD STREAMBANK STABILIZATION *

* The Township's application for funding submitted to the FEMA Pre-Disaster Mitigation program and denied.

The following roadways are in engineering design, and will be bid out and scheduled for construction in 2021:

WYNCREST ROAD (ROBERTSVILLE ROAD TO NJSH 18) *

BROOKSIDE CIRCLE (water improvements/partial) *

CLUBHOUSE LANE (ROBERTSVILLE ROAD TO COVENTRY TERRACE)

SCHOOL ROAD WEST (intersection improvements)

RECREATION WAY (parking lot)

* Project partially funded by NJDOT (See "Funding and Financing" below) which may affect schedule. Water improvements on Brookside Circle to be completed first followed by the paving on Wyncrest Road and Brookside Circle.

The following roadways have recently been paved under the State of New Jersey's project to remediate the old State Hospital property and install utilities in order to preserve more than 400 acres of open space in Marlboro:

PLEASANT VALLEY ROAD (CONOVER ROAD TO MOCKINGBIRD LANE)
CONOVER ROAD (IMBRIE PLACE TO 80 CONOVER ROAD)

The following roadways are scheduled for water main installation and partial road repaving starting in 2021 as part of the State of New Jersey's project to remediate the old State Hospital property in order to preserve more than 400 acres of open space in Marlboro:

MOCKINGBIRD LANE (water improvements/partial)*
PEACOCK LANE (water improvements/partial)*

* Project is currently out to bid (June, 2021). Water improvements to be completed first with road repaving to follow.

The following roadways are under currently contract, with construction to begin in 2021:

ADAMS STREET
APPLE BLOSSOM LANE
ARDSLEY PLACE
BARCLAY STREET
BRANDYWINE DRIVE
CHURCH ROAD (GORDONS CORNER ROAD TO GEORGIAN BAY DRIVE)
CONOVER ROAD (80 Conover Road to County Road 520)
CRINE ROAD (COUNTY ROUTE 520 TO CRINE LANE)
DEVONSHIRE DRIVE
GARY DRIVE
LISA LANE
NIKKI COURT
NOLAN ROAD (DOVER COURT TO #128)

PHEASANT DRIVE
QUAIL COURT
QUEBEC ROAD (CANADIAN WOODS ROAD TO MAPLE STREET)
REVERE COURT
THOMAS LANE (Wicker Place to Texas Road)
VICTORIA COURT
WICKER PLACE
WREN TERRACE

* Water or drainage improvements to be completed first with
road repaving to follow.

**The following drainage improvements are currently under
contract, with construction to begin in 2021:**

BRUNSWICK DRIVE (DRAINAGE ONLY)
PEGASUS COURT (DRAINAGE ONLY)

ROADS SCHEDULED FOR MILL & FILL WORK IN 2021

To be determined

* Mill & Fill work may be included in Base Bid.

PRELIMINARY FUTURE PLAN (2022)

The following roadway is awaiting permits to be issued by the New Jersey Department of Environmental Protection (NJDEP) and is now scheduled for construction in 2022:

HARBOR ROAD

The following roadway is in engineering design and scheduled for construction in 2022:

UNION HILL ROAD (CLAYTON ROAD TO MANALAPAN) *

* Project partially funded by NJDOT (See "Funding and Financing" below) which may affect schedule.

The following roadways are under review for consideration for 2022:

AMHERST ROAD
ANVIL COURT
BAUER LANE
CARTER DRIVE
COLLINGWOOD ROAD
DUNN DRIVE
ERIC COURT
EVAN DRIVE
FORGE COURT
HARNESS LANE
JACK LANE
JAMIE COURT
LAREDO DRIVE
MEADOW LANE
MERLE COURT
STONE LANE
SYNGLE WAY
TRUMAN DRIVE
WINDFALL LANE
MURRAY HILL TERRACE *

* Application made to FY 22 Community Development Block Grant (CDBG) program for funding.

The following drainage and road improvement project is being completed under a separate shared services agreement with Monmouth County:

Station Road Phase II is a full roadway reconstruction and drainage project between Briarcliff Drive and Crine Road. The project was incorporated into the Township's multi-year capital plan and authorized by the governing body in 2011. The reconstruction project will include the installation of new curbing on both sides of the road, addition of drainage inlets to collect stormwater runoff with discharge to existing culverts, and full depth reconstruction of the roadway with a consistent pavement width. This area of Station Road traverses three (3) Monmouth County drainage structures ("culverts") which are in need of reconstruction. The current invert elevation and alignment of the culverts result in siltation and blockages which lead to high frequency flooding as well as the deterioration and undermining of the adjacent roadway. This agreement was updated in May 2018 to include additional design services for the design and permitting of culverts ML-18 and ML-19 to modify the size of the proposed culverts and to address existing siltation and erosion occurring at these culverts. The Township Engineer's office has completed the roadway design plans for the roadway and is currently working on the design of the culverts and the permit applications. Once the design plans are complete, land use applications will be submitted to the NJDEP for freshwater wetlands and flood hazard permits. These permits take approximately six (6) months to receive from the NJDEP. It is anticipated that the permit applications will be submitted this fall with construction anticipated to begin in summer or fall 2022. The preliminary engineer's estimate for

the project is \$1,600,000 to be shared between the County and Township.

2021 DATA UPDATE

Since the initial OCI data was collected in 2004, the Township has both conducted in-field visual inspections and targeted core sampling. In addition, call for service and road opening permit data has been incorporated into the analysis for purposes of identifying problem areas and evaluating wear over time. Call for service and road opening permit data are closely monitored throughout the year for purposes of establishing prioritization in future year road improvement programs.

COORDINATION WITH OTHER PROGRAMS

The Township adopted Ordinance 2018-12 establishing a moratorium for roadway openings for a period of five (5) years after the resurfacing of a roadway. Excavations in moratorium streets are discouraged, and when allowed under emergency circumstances as determined by the Township Engineer and Public Works Director, require a full width roadway restoration with the limits exceeding the area of excavation.

Consistent with this policy for private services and to make the most efficient use of resources, the Township coordinates with the Planning Board and public utilities to time improvements such that the need for road re-openings are minimized. For example, drainage and roadway improvements on Buckley Road (construction recently completed) are dependent upon the completion of a stormwater detention facility constructed by a private entity which was recently completed. In another example, the Greenwood Road Phase

I contract was awarded only after a private stormwater collection pipe, a gas main replacement by New Jersey Natural Gas, and the Western Monmouth Utilities Authority's (WMUA) sewer pump station rehabilitation projects were all completed.

FUNDING AND FINANCING

The Township appropriated a total of \$16 million towards roads in the 2018 - 2021 capital improvement authorizations. The Township's credit rating (AAA-Standard and Poor's and Aaa-Moody's) ensures that capital improvements are financed at the lowest rates available.

The Township has applied for and received funding under both the FY 17 and FY 19 CDBG programs for paving in the Greenbriar development, and has submitted another application in the FY 22 round.

The Township is also utilizing several grants awarded by the NJDOT to supplement its road program as follows:

Township Road	Grant Year	Award
UNION HILL ROAD (CLAYTON ROAD TO MANALAPAN BORDER)	State FY 21	\$205,000
WYNCREST ROAD (NJSH 18 TO ROBERTSVILLE ROAD)	State FY 20	\$215,000

The Township has applied for funding for Improvements to Ryan Road (Robertsville Road to Route 79) in the State NJDOT FY 22 grant cycle.

In 2021, the number of requests for service during the first six (6) months of the year declined by 36% over the same period in 2019 and 43% over the same period in 2018.² In addition, the requests for service are concentrated on fewer streets, a reduction of 19% over 2019 and 24% over 2018. This is attributable in large part due to the size and scope of the 2018 and 2019 road programs, targeted specifically to roads requiring the most maintenance. The 2021 program is similarly targeted to address high-maintenance roadways. The Township continues to monitor requests for service data to ensure that the Paving Management Plan is addressing maintenance priorities.

The Pavement Management Plan will be re-evaluated during the Fall of 2021 as part of the Township's 2022 Capital Budget process.

² The year 2020 has been excluded from this analysis due to the pandemic restrictions that were in effect.