

TOWNSHIP OF MARLBORO
2023 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 \$135 per linear foot. At the other end, structural improvements and base rehabilitation can exceed \$225 per linear foot.

Bid priorities for the annual road improvement capital program are formulated by the Department of Public Works (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, Wyncrest 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) 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 2001-2023

The Township has authorized the paving of approximately 353,000 linear feet or 67 miles of roadway since 2009. 187 complete roads and 48 partial roadways have been paved since 2001. The road program continues to reach both local development streets as well as many major corridors in the Township, including the following:

SPRING VALLEY ROAD (TENNETT 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 ROAD TO MANALAPAN)
UNION HILL ROAD PHASE I (TENNETT ROAD TO NJSH ROUTE 9)
UNION HILL ROAD PHASE II (NJSH ROUTE 9 TO MANALAPAN)
GREENWOOD ROAD PHASE I (TENNETT 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 OLD BRIDGE)
CHURCH ROAD (GORDONS CORNER ROAD TO TENNENT ROAD)
WYNCREST ROAD (MANALAPAN TO NJSH 18)

Barring exceptional circumstances, secondary roadways (or sections of roadway) paved between 2001 and 2022 are not eligible for complete repaving or reconstruction under the 2023 Pavement Management Program.

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 DRIVE HEADWALL
RAND COURT HEADWALL
PLEASANT VALLEY ROAD STREAMBANK STABILIZATION
CANADIAN WOODS ROAD (DRAINAGE ONLY)
CLASSIC WAY (DRAINAGE AND ROAD REPAIR)
KENSINGTON DRIVE (DRAINAGE ONLY)
GALLYA GROVE (DRAINAGE AND ROAD REPAIR)
CHURCH ROAD/MC CUE ROAD DRAINAGE IMPROVEMENTS
WYNCREST ROAD AND SCHOOL ROAD WEST SIDEWALKS
BRUNSWICK DRIVE (DRAINAGE ONLY)
PEGASUS COURT (DRAINAGE ONLY)

ROAD, DRAINAGE AND SIDEWALK IMPROVEMENTS SCHEDULED FOR 2023

The following projects are under contract with construction anticipated between Summer of 2023 and Spring of 2024:

ROAD RECONSTRUCTION AND REPAVING

Bromley Court
Cambridge Court
Carter Drive
Clubhouse Lane (Coventry Terrace to Murray Hill Terrace)
Crine Road (Condor Drive to Station Road)
Dunn Drive
Eric Court
Evan Drive
Harness Lane *
Harrington Terrace
Hastings Road
Knob Hill Road (Ramsgate Drive to northern cul de sac)
Lee Court
Meadow Lane *
Melissa Court
Menzel Lane
Merle Court
Mockingbird Lane *
Peacock Lane *
Pleasant Valley Road and Reids Hill Road (intersection)
Ramsgate Drive
School Road East, Phase I (Brush Neck Road to Driftwood Lane/Colts Neck)**
Suffolk Way
Truman Drive

Falson Lane (Apx 860 feet from the intersection of Texas Road)***
Texas Road (Wooleytown Road to Hillcrest Road)***
Wooleytown Road (Sundew Drive to Texas Road)***

ROAD REPAIRS

Wyncrest Road (School Road West to Kennedy Drive)
Topanemus Road (Vicinity of Weathervane Way)
Provincial Way (Vicinity of #333)
School Road East (NJSH 79 and to Dutch Lane)
Union Hill Road (Willow Lane to Tennent Road)

DRAINAGE PROJECTS

Lisa Lane (vicinity of #17)
Micki Drive (vicinity of #9)
School Road East (vicinity of #55)

MISCELLANEOUS SITE IMPROVEMENTS

Resurfacing of Gibson Court Pedestrian Walkway
Resurfacing of Ramsgate Drive Pedestrian Walkway
Sidewalk Replacement on Rockwell Circle

Installation of Walking Path and Lighting at H&L Fields
Buckley Estates (final "punch list" items)
Recreation Center Parking Lot

- * Water improvements now completed with paving to follow.
- ** Phase II Brush Neck Road to Dutch Lane Road is under NJDEP jurisdiction and in the preliminary design stage. This section of roadway will be resurfaced once the permits are received from the NJDEP.
- ***Developer to pave at its cost upon completion of infrastructure improvements.

The following projects are in engineering design with bid award and construction anticipated between Summer of 2023 and Spring of 2024:

AMHERST ROAD
COLLINGWOOD ROAD
DICKSON ROAD
EATON COURT
ELIOT COURT
FARRELL LANE
HARBOR ROAD PHASE I (NJSH 79 to County Bridge ML-12)***
KENT COURT
MURRAY HILL TERRACE
NASH COURT
PEGASUS COURT
RILEY ROAD (CUL DE SAC)
RYAN ROAD PHASE II (NJSH 79 TO ROBERTSVILLE ROAD)**
SANDBURG DRIVE
STONE LANE *
WYLIE TERRACE

PUBLIC WORKS FUEL DEPOT AND SALT BARN AREA
RECREATION WAY PARKING LOT, DRIVE AND LIGHTING

- * Water improvements now completed with paving to follow.
- ** Project partially funded by NJDOT (See "Funding and Financing" below).
- *** Phase II (County Bridge ML-12 to Tennent Road) permitting is under review by the NJDEP. The Phase II Improvements will be completed once the NJDEP permit is received (anticipated 2024).

The design and permitting for the following roadway stabilization projects will be completed in 2023:

NOLAN ROAD STREAMBANK STABILIZATION *
NOLAN ROAD STORMWATER BASIN EMBANKMENT RESTORATION

* The Township has submitted a FEMA Pre-Disaster Mitigation Application for funding for this project.

The scheduled water main installation for the following project is near completion, with roadway resurfacing by Monmouth County to follow in 2024:

LLOYD ROAD (NJSH 79 TO ABERDEEN) *

* Water improvements will be completed first (currently under construction) followed by paving.

ROADS SCHEDULED FOR MILL & FILL* WORK IN 2023

AMBOY ROAD
BRANTFORD COURT
CONWAY COURT
DUTCH LANE ROAD
EAGLE ROAD
JAMIE COURT
MICKI DRIVE
MOHICAN COURT
MONTANA DRIVE
NASHUA DRIVE
PEREGRINE DRIVE
PRIDES LANE
SAMI COURT
SEMINOLE DRIVE
SHALLOW BROOK ROAD
SOUTH FOXCROFT DRIVE
ST. LAWRENCE WAY
TRACY DRIVE
TURQUOISE TRAIL
WILLOW LANE

* Sections of roadway which may be included in Base Bid.

PRELIMINARY FUTURE PLAN (2024)

The Township Engineer is in the process of preparing bid specifications for the following roadways that will comprise the ALTERNATE BID. To the extent funding is available after the BASE BID award, the following roads will be awarded and scheduled in 2023 with the balance to be completed in 2024, contingent upon the availability of funding.

ANVIL COURT
BUCKLEY ROAD (SCHOOL ROAD EAST TO NJSH 18)
BUCKTHORN COURT
FORGE COURT
HARTMAN ROAD
WINDFALL LANE

The Township has received a NJDOT Local Aid Grant for the following roadway. Engineering design authorization is anticipated in the summer of 2023, with construction to be scheduled in 2024:

TICETOWN ROAD (GREENWOOD ROAD TO OLD BRIDGE BORDER) *

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

The Township has received NJDOT Local Transportation Project Fund Grants for the following projects. Engineering design authorization is anticipated in 2023, with construction to be scheduled in 2024:

TOPANEMUS ROAD SIDEWALK IMPROVEMENTS *
NJSH 79 BIKE PATH *

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

The following roadways are under review for consideration for 2024:

ANDREWS DRIVE
BAUERS LANE
BERNADETTE ROAD (TICETOWN ROAD TO PERRY STREET)
BLACK WALNUT WAY
BLUFFS COURT
BRUCE ROAD
BUTTONWOOD DRIVE
CANNONADE DRIVE (RIVA RIDGE TO DAMASCUS DRIVE)
CLOVERLEAF DRIVE
CONOVER ROAD (NJSH 79 TO PLEASANT VALLEY ROAD)
CRINE ROAD (TENNENT ROAD TO CONDOR ROAD)
EGRET LANE
FLETCHER DRIVE
FRENEAU DRIVE
GALLYA GROVE
GEORGIAN BAY DRIVE
IMBRIE PLACE
JACK LANE
JACKIE DRIVE
JAMIE COURT
JUSTIN COURT
KINGSTON TERRACE
LAREDO DRIVE
MC CUE ROAD (MACKENZIE TERRACE TO VANCOUVER ROAD)
NELSON STREET
OPATUT COURT
ORCHARD HILLS ROAD
ORCHARD PARKWAY
OSPREY COURT
OVERHILL DRIVE
PEACH TREE COURT
PEREGRINE DRIVE
PRINCE EDWARD ROAD EAST
RACHAEL DRIVE
ROBERTSVILLE ROAD (BETWEEN FREEHOLD AND MANALAPAN BORDERS)
ROBINSON ROAD
SAMANTHA DRIVE
SCOTT DRIVE
STEVENSON DRIVE
STONY HILL DRIVE

SYNGLE WAY
TROTTER PLACE
WESTBROOK DRIVE
WILSON AVENUE
WOODLAND TERRACE

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 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 has provided preliminary culvert construction plans to the County for review. 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. The permit applications have been submitted to the County with construction now anticipated to begin in summer or

fall 2024. The preliminary engineer's estimate for the project is \$1,600,000 to be shared between the County and Township.

Route 79 Sidewalk Extension Project:

Funded by approximately \$1.37 million in grants through the New Jersey Department of Transportation (NJDOT), this project addresses yet another area identified in the Township's 2009 Pedestrian Access Plan. Specifically, this project involves the installation of new sidewalk on State Highway 79 between Wyncrest Road and County Route 520. The sidewalk improvements will dovetail with work already initiated by the Township through NJDOT for intersection improvements at both Route 79 and CR 520 and Route 79 and Wyncrest Road, and street lighting upgrades through JCP&L on Route 79. The project is now slated for completion in 2025.

2023 DATA UPDATE

Since the initial OCI data were collected in 2004, the Township has conducted in-field visual inspections and targeted core sampling. In addition, call for service and road opening permit data have 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 on 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 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, the drainage and roadway improvements completed on Buckley Road were dependent upon the completion of a stormwater detention facility constructed by a private entity. 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 approximately \$18 million towards roads in the 2018 - 2022 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 applied for and received funding under both the FY 17 and FY 19 CDBG programs for paving in the Greenbriar development and will submit another application in the FY 24 round.

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

Township Road	Grant Year	Award
TICETOWN ROAD (GREENWOOD ROAD TO OLD BRIDGE BORDER)	State FY 23	\$246,850
RYAN ROAD (ROBERTSVILLE ROAD TO NJSH ROUTE 79)	State FY 22	\$251,900
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 will apply for funding for Improvements to Robertsville Road between the Freehold and Manalapan borders in the State NJDOT FY 2024 grant cycle.

In 2023, the number of requests for service during the first four (4) months of the year declined by 44% over the same period in 2022 and 52% over the same period in 2019.² In addition, the requests for service are concentrated on fewer streets, a reduction of 30% over 2022 and 30% over 2019. This is attributable in large part to the significant amount of road reconstruction work performed between 2018 and 2022 on roads requiring more frequent requests for maintenance. The 2023 program is similarly focused on addressing 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 2023 as part of the Township's 2024 Capital Budget process.

² The years 2020 and 2021 have been excluded from this analysis due to the pandemic restrictions that were in effect.