

Chapter 8

Recommendations & Financial Plan

Dutchess County and the greater Mid-Hudson Valley face numerous challenges in the coming years, including population growth, aging infrastructure, and constrained funding resources at the federal, State, and local level. However, none of these prospects absolve the Transportation Council from its responsibility to plan for the future. The road ahead will be difficult, but it is one that has been travelled by others before us. And no matter how complex the challenges may seem, it is our responsibility to do the best we can with the resources we have. It is in this spirit that the recommendations in *Moving Dutchess 2* were developed.

Moving Dutchess 2 provides a framework for addressing the transportation needs and priorities for Dutchess County. These were identified through a comprehensive planning process that encompassed four major elements:

1. A review of federal, State, and local guidance, including previous Transportation Council studies and local comprehensive plans.
2. An analysis of transportation system data, including road and bridge conditions, transit use, vehicle crashes, traffic volumes, and travel times (congestion).
3. Information gathered from various public outreach efforts, including six workshops held throughout the county, a public survey, and monthly meetings of the Transportation Council's Planning Committee.

4. An assessment of where population and employment growth may occur.

As in the Transportation Council's previous Metropolitan Transportation Plan, *Moving Dutchess 2* recommends specific projects to preserve and improve the transportation system. This was done to increase the value of the Transportation Plan to public agencies and local communities by providing them greater detail on where to target future investments. A key goal throughout the development of *Moving Dutchess 2* was to create a relevant and targeted Transportation Plan. Much of this was possible due to advances in mapping and the increased availability of system data. For example, instead of stating that our roads and bridges should be maintained, we are now able to identify which roads and bridges need to be repaired and when.

Moving Dutchess 2 also recommends policies to better preserve and improve our transportation system. Not all solutions to our future challenges require constructing infrastructure. Adopting and implementing new policies and procedures, especially as they relate to land use decisions and project delivery, can influence the transportation system just as much as 'brick and mortar' projects.

By law, *Moving Dutchess 2* is required to have a Financial Plan that demonstrates how the recommendations will be funded. The Financial Plan uses planning-level cost estimates and forecasts of reasonably expected funding to ensure that the recommendations are financially constrained and not simply a wish list of projects. Project cost estimates are adjusted for

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inflation based on the project's Year of Expenditure (YOE), providing a more realistic estimate of funding needs. These projects represent the financially constrained list of project recommendations.

In order to account for worthy projects that do not have available funding, a financially unconstrained list of projects was also developed. Many of these projects go beyond preserving the existing transportation system, to improve quality of life through new trails, sidewalks, bicycle facilities, transit service, roadway connections and safety enhancements. Though funding is not currently available for these projects, they are included in the event that funding becomes available.

Project-level Recommendations

Moving Dutchess 2 makes project recommendations for the 25-year period from 2016-2040. The recommendations are divided into short-range (2016-2020), mid-range (2021-2030), and long-range (2031-2040) time periods, which are related to each project's relative priority and complexity, and the availability of funding.

In general, short-range projects have the highest priority and are already programmed on the Transportation Council's FFY 2014-2018 Transportation Improvement Program (TIP) or will carry over to the future FFY 2017-2021 TIP. This time period is the most financially constrained, due to limited federal and state funding in the next five years. The mid- and long-range time periods include projects to preserve the transportation system, enhance transportation safety, and increase

accessibility. Many of these projects are more complex than the short-range projects and will require more time to design and complete.

The recommended projects are categorized into eight project types, which relate to the general focus of the project:

1. **Bridge Maintenance:** replacement or rehabilitation of bridges that are currently in or are expected to be in poor condition.
2. **Highway Maintenance:** reconstruction or rehabilitation of roadway segments that are currently in or are expected to be in poor condition.
3. **Highway Operations:** intersection, turning lane, and traffic signal projects to improve traffic operations and reduce congestion.
4. **Safety:** intersection and road improvements to increase safety, as well as safety analyses.
5. **Pedestrian/Bicycle:** construction or rehabilitation of sidewalks, crosswalks, trails, and other non-motorized facilities to improve safety and accessibility.
6. **Travel Demand Management (TDM):** rideshare and vanpool activities to reduce the number of single-occupant vehicles on major corridors.
7. **Transit:** bus replacements, operating assistance, and preventive maintenance activities for transit providers, as well as facility upgrades and information technology projects for bus and commuter rail.
8. **Planning:** subjects or locations requiring specific transportation-related analysis, including corridor management plans and pedestrian/bicycle studies.

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Categorizing the recommendations into project types assists with financial planning, since future funding assumptions are based on funding programs for three overall project types: highway/bridge, transit, and planning.

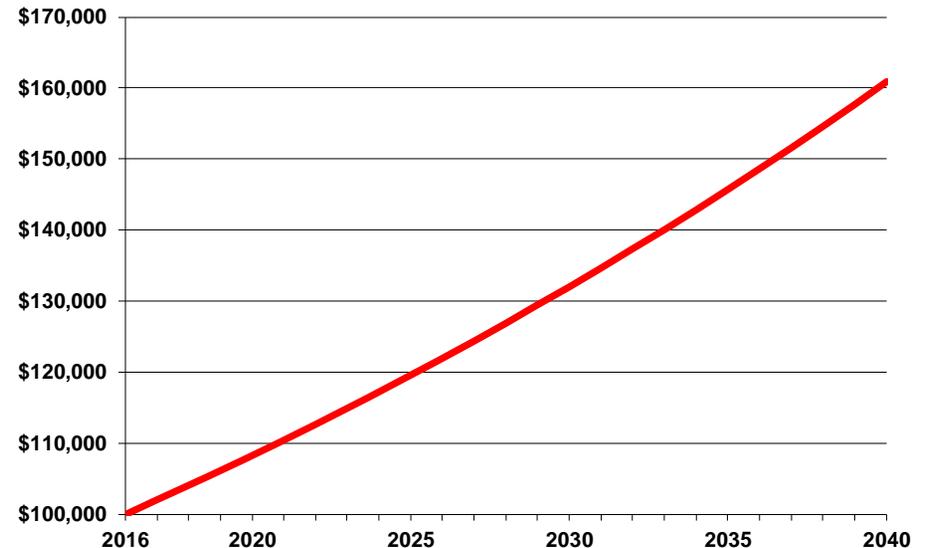
The location, estimated cost, federal-aid eligibility, and TIP status are provided for each recommended project. Projects that are already programmed on the 2014-2018 TIP or that will carry over to the 2017-2021 TIP are also identified. Although *Moving Dutchess 2* recommends a variety of new projects, this does not mean that funding has been programmed for the project. In order to move forward, a project must first be added to the TIP; this requires approval by the Transportation Council, available funding, and a commitment by the project sponsor to progress the project in a timely manner.

Cost estimates were calculated using recent planning-level unit costs (by project type and scope) to estimate a total project cost, which was then inflated to reflect a YOE cost. The Transportation Council used a two percent annual inflation rate to estimate YOE costs in *Moving Dutchess 2*. This aligns with the annual inflation rate used by NYSDOT in its program guidance for the FFY 2017-2021 TIP. This inflation rate was based on an estimate of overall price trends for the transportation/public works sector in New York State.

The estimated costs for short-range projects were based on a 2016 YOE; if the project was programmed on the TIP, the cost on the TIP was used. The estimated costs for mid-range and long-range projects were based on the last year within the

respective time period (e.g. 2030 and 2040). For example, a 100 ft. bridge recommended for rehabilitation during the long-range time period (2031-2040) was estimated to cost \$1.6 million (\$16,000 per linear foot) in 2016 dollars to repair and almost \$2.2 million (\$22,400 per foot) in 2040 dollars. See Figure 8.1 below.

Figure 8-1. YOE Inflation for \$100,000 (2016-2040).



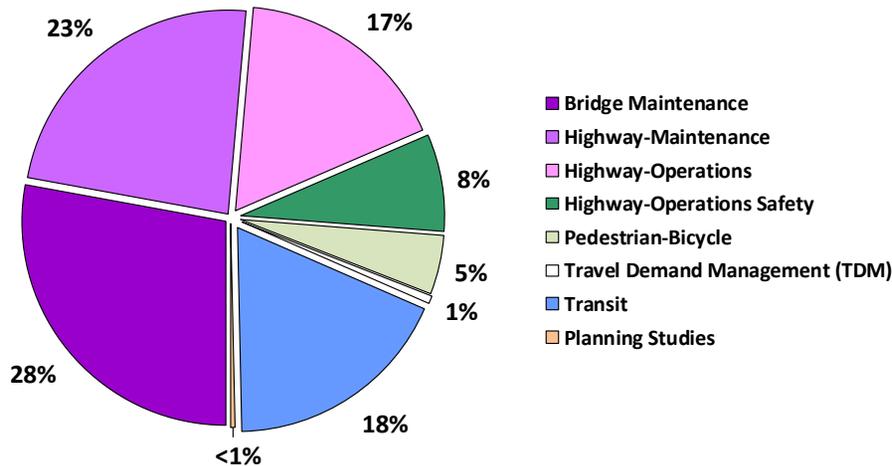
The Transportation Council emphasizes that the costs associated with the recommendations are planning-level estimates only; they should not be used as site specific construction cost estimates. This is especially true for highway and bridge maintenance projects, which require site specific analyses to determine their true cost. The cost estimates were simply calculated to determine the approximate level of investment needed to preserve the federal-aid transportation

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system, maintain safety and mobility, and protect quality of life.

Moving Dutchess 2 recommends a variety of federal-aid eligible projects and studies over the 25-year planning period. The majority of these projects are maintenance-related, striving to maintain public safety and preserve the system as best as possible. Table 8-1, located at the end of this chapter, lists the recommendations for *Moving Dutchess 2*; this list includes non-federal aid eligible projects for information purposes only. Tables 8-2, 8-3, and 8-4 show recommended funding by each project type, overall project type, and time period. Figure 8-2 shows the percent of total recommended funding by project type. A summary of the recommendations for each project type is provided below.

Figure 8-2. Percent of Total Recommended Funding by Project Type (2016-2040)



Bridge Maintenance

The preservation of federal-aid eligible bridges represents an important focus area for *Moving Dutchess 2*. This is in recognition of the important role that bridges play in our transportation system: a closed bridge can delay response times for emergency responders, disrupt the movement of goods, and greatly diminish personal mobility. It is for these reasons that the Transportation Council has placed attention to the maintenance needs of State, County, and local bridges, recommending that 28 percent of projected highway funds support bridge maintenance and repairs.

The Transportation Council recommends that agencies pursue a preservation-based approach to maintaining bridges. This includes preventive maintenance work such as sealing or replacing a deck, cleaning and painting structures, replacing bearings, and rehabilitating piers, columns, and beams. To account for this type of work, the bridge maintenance category includes \$5 million annually for State and County-owned bridges in Dutchess County. These include NYSDOT and DCDPW projects for 'where and when' preventive maintenance, bridge washing/deck sealing, bridge painting, and bridge inspections.

In some cases, the responsible agency may deem that a bridge replacement is needed to maintain public safety. This is especially true for bridges that have condition ratings below 4.0 and are considered Structurally Deficient or Deficient under FHWA or NYSODT standards. In order to quantify the number of bridges that might require replacement or reconstruction during the 2016-2040 planning period, the

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Transportation Council estimated the future condition of each bridge by first comparing its condition rating from 2011 (*Moving Dutchess*) with 2015 (*Moving Dutchess 2*), and then calculating an annual degradation factor (i.e. change over the four years from 2011 to 2015). This degradation factor, unique to each bridge, was then applied to the 2015 rating and extrapolated over the 25-year planning period. This simple model assumes that bridges will degrade at the same rate over time, which the Transportation Council realizes may not always be the case. Therefore, this bridge model should be viewed as a general attempt to quantify future bridge needs in the county, and not a specific forecast.

The initial list of deficient bridges with existing condition ratings below 4.0 or projected to be below 4.0 by 2040 was then compared to planned work activities by NYSDOT and DCDPW. Bridges already programmed on the FFY 2014-2018 TIP and future FFY 2017-2021 TIP (11 total), as well as those programmed on the DCDPW Capital Program (nine total), were assumed to have condition ratings of 7.0 and would therefore not require replacement during the planning period. Additionally, bridges with Annual Average Daily Traffic (AADT) of fewer than 200 vehicles (22 total) were removed from consideration due to limited funding, as were privately-owned bridges.

In total, the Transportation Council identified 134 publically-owned bridges (approximately 37 percent of all bridges in the county) that will require substantial repairs or replacement during the 25-year period. These priority bridges are either currently deficient or projected to be deficient. Table 8-5

shows the estimated number of deficient bridges by road type and time period.

Table 8-5. Number of Bridges Estimated to be Deficient by Facility Type and Time Period (2016-2040)

Road Carried	Short-Range (2016-2020)	Mid-Range (2021-2030)	Long-Range (2031-2040)	Total
Total NHS	15	22	14	51
Total Non-NHS	16	43	24	83
Federal Aid	4	18	10	32
Non-Federal Aid	12	25	14	51
Total	31	65	38	134

Of the 134 bridges estimated to be deficient, 51 bridges are located on the National Highway System (NHS), with an additional 32 located on a federal-aid road. The remaining 51 bridges are located on non-federal aid roads or 'off-system.' In order to maintain a general state of good repair across the entire system would require five to six major bridge repairs per year by NYSDOT, Dutchess County, and local municipalities combined. The time periods associated with the bridge repairs should be viewed as a general reference, rather than a binding timeframe. The ultimate responsibility for the timing of a bridge project rests with the responsible agency.

In order to estimate the funding needed to preserve priority bridges, a rehabilitation cost of \$16,000 per linear foot was applied to the length of each bridge. This cost rate reflects the

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average bridge repair cost per foot for all bridges repaired across the state from 2012-2014. The average cost rate was applied to the length of each bridge to calculate a cost estimate for its repair. Again, the Transportation Council recognizes that this method is general in nature.

The reconstruction of priority bridges in Dutchess County is estimated to cost almost \$340 million during the planning period. This represents 28 percent of the highway and bridge funding assumed to be available during the 25-year planning period. This share may increase if it is determined that additional bridges require major rehabilitation or replacement, or if individual conditions worsen beyond projected levels. In addition to maintaining State, County, and local bridges, the continued maintenance of NYSBA-operated bridges is critical to the county's transportation system.

Highway Maintenance

Moving Dutchess 2 recommends a variety of highway maintenance projects to maintain the county's federal-aid eligible roads in a state of good repair. These projects include rehabilitation work to repair road segments that are currently rated in poor condition or expected to be in poor condition within the 25-year planning period.

Due to funding constraints, the Transportation Council recommends a preservation-based approach. This rehabilitation work primarily involves single or multi-course overlays, minor surface treatments, and crack/joint repairs. The reconstruction of a road is not recommended unless the responsible agency deems it necessary to ensure public safety.

The recommended highway maintenance projects include some non-federal aid eligible projects, which are shown for informational purposes only.

The recommendations under this project category also include other highway maintenance activities necessary to preserve the road network, including NYSDOT and DCDPW system-wide 'where and when' repairs and culvert/catch basin repairs. These repairs are estimated to cost \$4 million annually for State highways in Dutchess County. Similar Dutchess County DPW highway maintenance activities are estimated to cost \$1 million annually.

In order to estimate the funding needed to preserve federal-aid eligible highways, a rehabilitation cost of \$150,000 per lane mile was applied to the length of each road project. This rate reflects the 2015 NYSDOT cost for a single-course, Hot Mix Asphalt (HMA) overlay.

The highway maintenance projects are prioritized based on pavement condition data collected by NYSDOT and DCDPW. During the short-range period, State roads with a NYSDOT rating of 5 or less and federal-aid eligible County or local roads with a Pavement Condition Index (PCI) rating of 55 or less are recommended for rehabilitation. In order to account for the deterioration of facilities over time, State roads with a NYSDOT condition rating of 6 and federal-aid eligible County roads with a PCI rating of 56 to 75 are recommended for rehabilitation during the mid-range period, while the remaining roads, currently rated in good or excellent condition, are recommended for long-range rehabilitation. For

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planning purposes, this assumes that all roads will degrade at the same rate over time.

The rehabilitation and maintenance of federal-aid eligible roads in Dutchess County is estimated to cost over \$286 million during the planning period. This represents over 23 percent of the highway and bridge funding assumed to be available over the next 25 years. This share may increase if some roads require major rehabilitation work or reconstruction. The rehabilitation of non-federal aid eligible County roads is estimated to cost an additional \$46 million over the planning period, although this cost is not included in the Financial Plan.

Highway Operations

Moving Dutchess 2 recommends 24 projects to improve highway operations in Dutchess County. These include projects that reduce traffic congestion and improve safety such as adding turn lanes, upgrading or retiming traffic signals and redesigning intersections and interchanges. Additionally, the recommendations include NYSDOT and DCDPW system-wide operational maintenance work such as traffic signal and sign repairs, and Intelligent Transportation System (ITS) upgrades.

In total, *Moving Dutchess 2* recommends over \$208 million to improve highway operations in Dutchess County, which represents over 17 percent of the highway and bridge funding estimated to be available. The recommendations include redesigning State highways into boulevards within Town centers (e.g. Route 44 in Pleasant Valley; Route 82 in Hopewell

Junction), redesigning Market St. in the City of Poughkeepsie from one-way to two-way traffic, and redesigning the Route 376 Route 376/Lake Walton Rd./Robinson Ln. intersection in East Fishkill. The Highway Operations category also includes two regionally significant, long-range transportation projects:

1. Redesigning the Route 9/44/55 interchange in the City of Poughkeepsie to improve traffic safety and operations, while also incorporating safe pedestrian and bicycle access (estimated total cost of over \$81 million).
2. Redesigning the I-84/Route 9D interchange in the Town of Fishkill to improve traffic safety and operations, while also incorporating safe pedestrian and bicycle access (estimated total cost of almost \$41 million).

Due to the scope of these two projects, additional federal and state funding above and beyond normal allocations will be needed. This could include a possible USDOT Transportation Investment Generating Economic Recovery (TIGER) grant and/or NYSDOT Beyond Preservation (BP) funding.

Safety

Although many of the recommendations in *Moving Dutchess 2* are not listed under the safety category per se, one could argue that all of the recommendations are safety projects: a repaired sidewalk removes a tripping hazard, a new turn lane prevents a rear-end collision, a fixed pothole keeps a vehicle in its travel lane, and a new bus makes it easier for a customer to climb aboard. All of the recommendations should therefore be viewed as having a safety component.

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Moving Dutchess 2 recommends 22 specific safety projects to improve transportation safety on federal-aid eligible roads. These safety recommendations include a variety of projects such as realigning roads, installing traffic warning signs, improving sight distances, and installing traffic calming devices at various locations. The recommendations include three linear projects on major County highways:

1. Realigning CR 9 (Beekman Rd.) from CR 10 (Sylvan Lake Rd.) to Taconic State Parkway (TSP) in the Towns of Beekman and East Fishkill to improve sight distances and correct safety deficiencies (estimated total cost of \$5 million).
2. Realigning CR 28 (Old Hopewell Rd.) from Route 9 to CR 94 (All Angels Hill Rd.) in the Town of Wappinger to improve sight distances and correct safety deficiencies (estimated total cost of \$5.9 million).
3. Realigning CR 93 (Myers Corners Rd.) from Route 376 to CR 94 (All Angels Hill Rd.) in the Town of Wappinger to improve sight distances and correct safety deficiencies (estimated total cost of \$6 million).

The safety recommendations also include the implementation of recommendations from the three Safety Assessments the Transportation Council has completed since the 2011 Transportation Plan (CR 9 – Beekman Rd., CR 16 – N. Quaker Ln., and CR 19 – Slate Quarry Rd.).

Moving Dutchess 2 also recommends system-wide safety activities such as sign replacements, special surface treatments, guiderail replacements, the installation of

centerline rumble strips, pedestrian countdown timers, and HELP truck services. These activities are estimated to cost \$1 million annually for Dutchess County only.

The Transportation Council estimates that these safety-specific recommendations will total almost \$94 million during the planning period, representing eight percent of available highway and bridge funding. Some of this funding will require project sponsors to secure funding from FHWA's Highway Safety Improvement Program (HSIP) funding.

Pedestrian/Bicycle

Ensuring the safety of people walking and bicycling by maintaining and improving non-motorized infrastructure is an essential component of Complete Streets and developing a complete transportation system. Accordingly, *Moving Dutchess 2* recommends 32 pedestrian and bicycle projects that address the construction of new sidewalks and trails, the repair of existing sidewalks, and the addition of crosswalks and signs at key locations. Many of the recommendations stem from *Walk Bike Dutchess*, the County's 2014 Pedestrian and Bicycle plan.

Highlights under this category include the following projects:

1. Implementing recommendations from the Transportation Council's previous sidewalk studies for the Towns of Hyde Park and Pine Plains, and Village of Rhinebeck (estimated total cost of \$4 million combined).

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2. Signing and marking the City of Poughkeepsie's nine bicycle routes, to include sharrows, bicycle lanes, bicycle boulevards, and other treatments as appropriate.
3. Creating a shared-use path along the west side of Zack's Way/Boardman Rd. between Hooker Ave./New Hackensack Rd. and Spackenkill Rd. in the Town of Poughkeepsie (estimated total cost of \$3 million).
4. Installing sidewalks on Route 9 from Mesier Ave. in the Village of Wappingers Falls north to IBM Rd. in the Town of Poughkeepsie, and constructing a new pedestrian bridge on Route 9 over the Wappinger Creek (estimated total cost of \$5.3 million).
5. Installing a sidewalk on Route 113 (Spackenkill Rd.) in the Town of Poughkeepsie from Croft Rd. to Boardman Rd. (estimated total cost of \$2.6 million).
6. Installing a sidewalk on one side of CR 93 (Myers Corners Rd./Middlebush Rd.) in the Town of Wappinger from Route 9D to Route 376 (estimated total cost of \$6.7 million).

Moving Dutchess 2 also includes two major rail trail projects that build upon recent trail work done throughout the county:

1. Completing Phase IV of the Harlem Valley Rail Trail from the Village of Millerton to the Columbia County line (estimated total cost of over \$8 million).
2. Constructing the Hudson Highlands Fjord Trail, a nine-mile separated path/trail along Route 9D or the Hudson River shore, connecting the Beacon train station to the Village of Cold Spring train station in Putnam County (approx. 3.8

miles in Dutchess County) (estimated total cost of over \$17 million).

The pedestrian and bicycle recommendations are estimated to cost over \$57 million during the planning period, which represents five percent of highway and bridge funding estimated to be available through 2040. These funding estimates assume that project sponsors will successfully secure funding from programs such as FHWA's Surface Transportation Block Grant Program (STBGP) set-aside for pedestrian/bicycle projects (formerly the TAP-Transportation Alternatives Program), HUD's Community Development Block Grants (CDBG), of other funding made available through the State's Consolidated Funding Application (CFA) process.

Travel Demand Management (TDM)

Moving Dutchess 2 recommends continuing Travel Demand Management (TDM) activities aimed at reducing the number of single-occupant vehicles on major corridors. These activities include the promotion of carpools and vanpools through information technology and van leasing programs. The recommendations support the continuation of the 511NYRideshare program, which provides an information portal to match commuters who have similar origins and destinations. The TDM project category also includes a recommendation to construct a second park-and-ride lot near the Taconic State Parkway (TSP)/Route 52 interchange in East Fishkill to relieve parking congestion. In total the Transportation Council estimates that these TDM activities will total \$7.5 million during the planning period.

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Transit

Bus and rail transit play a critical role in our transportation system, providing mobility to those who cannot or choose not to drive, and providing access to regional employment and commercial centers. The 34 federal-aid eligible transit recommendations support existing bus and rail operations in the area and the limited expansion of bus service in the county (e.g. Sunday service; express routes; increased demand-response services).

The transit recommendations include short-, mid-, and long-range projects to maintain and operate the two public bus systems (Dutchess County and City of Poughkeepsie). These projects cover preventive maintenance, operating assistance, and vehicle replacements for each operator during the three time periods. The recommendations were based on the estimated needs of each operator, including vehicle and equipment replacement schedules. The cost estimates for these projects were based on current annual costs adjusted by YOE and multiplied by the number of years in each time period.

Other recommended projects include the installation of bus stop shelters to improve passenger comfort and safety, and the installation of signs and deployment of information technology to increase the availability of transit information. Specific commuter rail recommendations include current TIP projects to expand Metro-North's Wassaic rail yard and rehabilitate the Poughkeepsie train station.

As a subsidiary of the Metropolitan Transportation Authority (MTA), Metro-North Railroad projects are included in the

MTA's Capital Program. MTA's 2015-2019 Capital Program identifies over \$2.3 billion in projects to improve Metro-North service, including the purchase of new rolling stock (locomotives and cars), signal and power improvements to meet Positive Train Control requirements, the continued rehabilitation of stations, and track maintenance. The MTA's 20-Year Capital Needs Assessment (2015-2034) identifies \$8.9 billion in system-wide capital needs for Metro-North. These needs are required to maintain a state of good repair and support projects such as replacing rolling stock and maintaining track. Metro-North Railroad projects are not included in the project recommendations for *Moving Dutchess 2* unless they are specific to Dutchess County.

The transit recommendations specific to Dutchess County are estimated to cost almost \$221 million, which represents 18 percent of all funding estimated to be available over the planning period.

Planning Studies

In addition to updates of the Metropolitan Transportation Plan and the Pedestrian-Bicycle Plan, *Moving Dutchess 2* recommends a variety of smaller planning studies to address specific transportation issues in municipalities and neighborhoods, and along major transportation corridors. These focused studies require detailed analyses beyond the system-level analysis done for a county-wide Transportation Plan.

Many of the recommended planning studies continue work already being done by the Transportation Council. This

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includes the Local Sidewalk Planning Initiative, where staff conducts a sidewalk inventory and recommends strategies to improve pedestrian connections in a community, and the Safety Assessment program, where staff, working with local agencies, conducts a crash analysis and field work to identify low cost improvements to improve safety on high-crash corridors. *Moving Dutchess 2* further recommends the completion of a Corridor Management Plan (CMP) for Route 9D in the Lower Hudson and Route 9G in Hyde Park, similar to those done for Route 9G in Red Hook/Tivoli and CR 93 (Myers Corners Rd.) in Wappinger. Beyond local studies, *Moving Dutchess 2* recommends two new county-wide planning initiatives:

1. An analysis of speed patterns on County and local roads, which will use speed data from the Transportation Council's traffic count program to identify corridors with high percentages of 'high-end' speeders (e.g. 10 mph or more over the posted speed limit). The analysis will assist local agencies to develop engineering, enforcement, and educational approaches to reduce speeding.
2. A pavement monitoring program for local roads in Dutchess County that will provide municipalities with better baseline information to plan and program paving projects.

As discussed in Chapter 3, the Transportation Council will partner with OCTC and UCTC to develop a Regional Transit Plan and Regional Freight Plan for the TMA. In total the planning related recommendations are estimated to cost over \$3.8 million, which is less than one percent of all

recommended funding in *Moving Dutchess 2*. These planning studies would be programmed by the Transportation Council through its annual UPWP.

Unfunded Projects

During the development of *Moving Dutchess 2*, a variety of project concepts were identified from local comprehensive plans, previous studies, and suggestions by local officials and the public. Due to funding constraints, these concepts are not identified as recommendations, but are included for illustrative purposes only. Many require further study to determine their merit, while others require more defined scopes and purposes. This is especially true for highway capacity improvements, which cost considerably more than simple highway maintenance activities. Appendix E lists Unfunded Projects identified during the development of *Moving Dutchess 2*.

Financial Plan

The recently-passed Fixing America's Surface Transportation (FAST) Act requires that the projects recommended in *Moving Dutchess 2* be financially constrained. Financial constraint is demonstrated through a financial plan that shows how the projects can be funded based on estimates of current and reasonably available future revenues. The plan must also demonstrate that the federally-supported transportation system is being adequately operated and maintained. It is extremely difficult to predict future funding since there is still some debate about the role of the federal government in

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supporting the local transportation system. There is equal uncertainty about the future of State and local funding. Despite these uncertainties, *Moving Dutchess 2* assumes that federal, State, and local entities will dedicate sufficient funds to preserve the transportation system to maintain safety and mobility.

The financial plan uses three funding scenarios, tied to the three time periods used to prioritize recommendations:

1. Short-range (2016-2020): This scenario assumes that annual federal, State, and local transportation funding will remain flat at 2016 levels for the five-year period, as per the most recent funding targets for the upcoming 2017-2021 TIP. However, additional transportation funding may be possible through the FAST Act.
2. Mid-range (2021-2030): This scenario assumes that federal, State, and local transportation funding will increase by one percent annually during the ten-year period, which is slightly below the current annual rate of inflation of two percent. This would raise the annual allocations to pre-2012 levels by 2030, and would rely on new multi-year federal transportation laws from Congress.
3. Long-range (2031-2040): This scenario assumes that federal, State, and local funding will increase at the same rate as inflation (two percent annually) during the ten-year period. Again, this would require new multi-year federal transportation laws from Congress.

Available Funding

The Transportation Council relied on current and historic funding allocations to estimate the amount of highway, transit, and planning funds available over the *Moving Dutchess 2* planning period. Though there are numerous federal funding programs, the financial plan focuses on the major surface programs. Based on recent federal transportation laws such as MAP-21 and the new FAST Act, the Transportation Council assumes that future federal surface transportation acts will continue to consolidate federal programs and provide agencies the flexibility needed to preserve the highway and transit systems.

For *Moving Dutchess 2*, the Transportation Council estimated future funding for three broad project categories: highway (including bridge and pedestrian/bicycle), transit (including bus and rail), and planning. Table 8-6 shows available funding by project type and source for each time period.

Estimated Federal, State, & Local Highway Funds

The federal Highway Trust Fund (HTF), supplemented by some general funds, provides the majority of federal highway and transit funding to states. The HTF was created in 1956 as a user-supported fund to build the Eisenhower Interstate System. HTF revenues come from user fees on gasoline, diesel, special fuels, tires, and large trucks. The current fees, last updated in 1993, include a gasoline tax of 18.4 cents per gallon and a diesel tax of 24.4 cents per gallon. Funding from the HTF is administered through FHWA by the states and used

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to maintain federal-aid eligible highways and other transportation facilities.

To estimate available highway funding, the Transportation Council first used the highway funding targets established by NYSDOT in September 2015. Though primarily developed for the FFY 2017-2021 TIP update, these funding targets provide the best estimate of federal and State highway funding that will be available during the 2016-2020 time-period. Overall, these targets assume federal funding will remain flat at FFY 2016 levels. However, since these planning targets were established prior to the passage of the FAST Act, there is a slight possibility that available highway funding may increase in the short-term.

For the FFY 2017-2021 TIP update, NYSDOT-Region 8 received an annual funding target of approximately \$138 million, or \$690 million for the five-year period, for all core FHWA programs combined (e.g. NHPP – National Highway Performance Program, STP – Surface Transportation Program, and CMAQ – Congestion Mitigation and Air Quality improvement program). These funding targets represent the amount of funding likely to be available for eligible federal-aid projects in Region 8’s seven counties: Columbia, Dutchess, Orange, Putnam, Rockland, Ulster, and Westchester counties.

NYSDOT-Region 8 uses a fair-share formula based on population data and highway/bridge data to establish FHWA funding targets for each of the seven counties. Consistent with past practice, approximately 13 percent of the Region’s total is oriented towards the federal-aid highway system in Dutchess

County. Based on the Region’s overall allocation, this equates to a five-year FHWA target of approximately \$89.7 million for state and local federal-aid projects in Dutchess County, or \$17.9 million annually. Note: of this annual target, only \$3.2 million in FHWA funding is available to non-State (i.e. local) federal-aid projects.

Since FHWA funding requires a 20 percent local match, the estimated amount of total highway funding is increased to reflect State and local contributions. For local projects, the local share requirement is typically split between NYSDOT and the local project sponsor (75/25 percent respectively). Adding the 20 percent local match brings the amount of available highway funding to \$22.4 million annually for the FFY 2017-2021 TIP (\$17.9 million in FHWA funds, \$4.1 million in State funds and \$400,000 in local funds).

In addition to FHWA funds, NYSDOT-Region 8 is allocated State Dedicated Funds (SDF) to support the State highway system. These funds are typically used for routine system-wide preventive maintenance projects. For the 2017-2021 TIP update, Region 8 received a planning target of over \$231 million in SDF funds, with \$32.7 million allocated to State projects in Dutchess County. These additional State funds add \$6.5 million to the annual highway funding target in Dutchess County. This raises the total amount of available federal-aid and State highway funding to approximately \$29.3 million per year for the short-range period (\$146.5 million total), which represents the amount of federal, State, and local highway funding assumed to be available to NYSDOT, Dutchess County,

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and local municipalities to preserve the federal-aid highway system from 2016-2020.

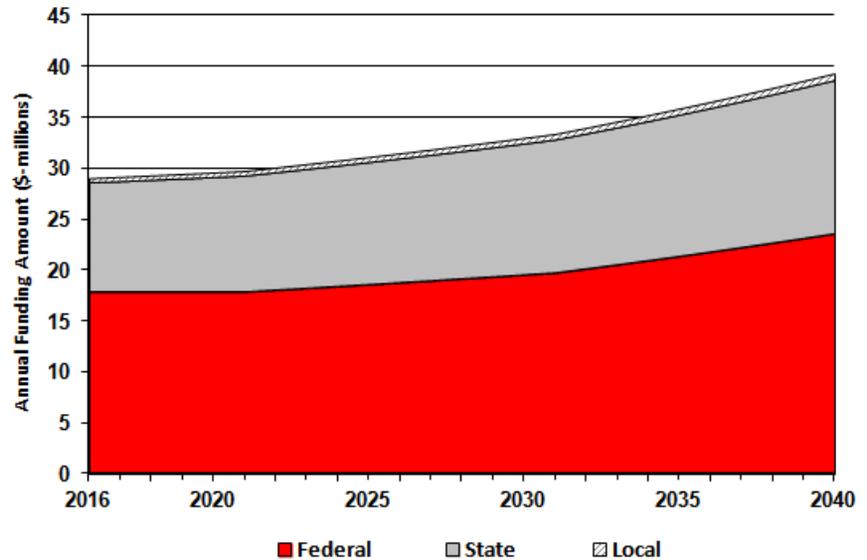
The estimated amount of available highway funding during the mid-range period (2021-2030) assumes that the next federal transportation act will begin to increase funding by one percent annually. By 2030, the annual amount of highway funding estimated to be available is approximately \$33 million (\$19.4 million federal, \$12.9 million State, and \$500,000 local). A total of \$313 million in highway funding is assumed to be available over the ten-year period from 2021-2030 (approximately \$187 million federal, \$121 million State, and \$5 million local).

The estimated highway funding during the long-range period (2031-2040) assumes that annual highway funding will increase at the rate of inflation (currently two percent). By 2040, the annual amount of highway funding estimated to be available over this period is approximately \$39.4 million (\$23.6 million federal, \$15.1 million State, and \$700,000 local). A total of \$363 million in highway funding is assumed to be available over the ten-year period (\$216.5 million federal, \$140.4 million State, and \$6 million local). Figure 8-3 shows the annual amount of estimated highway funding by source.

Over the entire planning period (2016-2040), the Transportation Council estimates that approximately \$823 million (\$493 million federal, \$317 million State, and \$13 million local) in highway funding will be available for State and local federal-aid projects. For reference, this is 36 percent less than the amount of highway funding estimated in the 2011

Transportation Plan, which indicates the challenges facing federal, State, and local governments to maintain our transportation infrastructure.

Figure 8-3. Annual Amount of Estimated Highway Funding by Source



The estimated highway funding does not include sources such as the State's Consolidated Local Street and Highway Improvement Program (CHIPS) or local general funds. The Transportation Council assumes that these funds will be used on the non-federal aid system. For DCDPW alone, CHIPS funding is estimated to provide approximately \$75 million over the planning period (approximately \$3 million per year) to maintain non-federal-aid eligible roads.

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Estimated Federal, State, & Local Transit Funds

Future transit funding was estimated by totaling the federal, State, and local funding available per year based on historic allocations and revenues, and extrapolating those amounts over the planning period.

Federal transit funds are administered by the FTA and apportioned to the entire Poughkeepsie-Newburgh Urbanized Area, based on statistics reported through the National Transit Database (NTD). The annual FTA apportionment does not directly allocate funding to transit operators; instead, this responsibility rests with the three MPOs of the Mid-Hudson Valley TMA, assisted by the NYSDOT-Public Transportation Bureau.

Each year the NYSDOT-Public Transportation Bureau provides transit funding allocations to the Mid-Hudson Valley TMA. The allocations cover three federal programs: the FTA Section 5307 (Urbanized Area), FTA Section 5340 (Growing States/High Density States), and FTA Section 5339 (Bus and Bus Facilities) formula programs. From 2013-2015, these allocations averaged \$22.5 million per year for the Urbanized Area. Of this amount, the county's two local public bus operators (Dutchess County and the City of Poughkeepsie) typically received a combined \$2.8 million (\$1.5 million and \$500,000 respectively) per year. The TMA allocations also include funding for MTA/Metro-North Railroad for transit services provided in the urbanized area (approximately \$2.5 million annually).

In addition to federal funding, the State provides operating assistance to public bus operators, referred to as STOA. This is a formula-based program that reimburses operators 40.5 cents per passenger and 0.69 cents per vehicle mile. Dutchess County and the City of Poughkeepsie receive approximately \$2.4 million per year in STOA (\$2 million and \$400,000 respectively).

Besides federal and State funding, the two operators receive assistance through their local governments. These include local matches to federal funds (usually ten percent) and general funds from annual budgets. These total approximately \$2.2 million per year. The operators also use fare revenue to help maintain their systems, which is an additional \$1 million per year (\$700,000 for Dutchess and \$300,000 for Poughkeepsie).

Based on recent federal, State, and local funding and fare revenues, the Transportation Council estimates that \$11.5 million will be available annually for the two local transit systems; this assumes that the recent trend of flat funding will continue. Based on this annual amount, over \$43 million in transit funding would be available during the short-range period (2016-2020), \$87 million during the mid-range period (2021-2030), and \$87 million during the long-range period (2031-2040). This represents a total of over \$217 million available to the public bus systems over the planning period. This does not include an estimated \$62.5 million in FTA Section 5307/5340 funding that would be allocated to MTA/Metro-North Railroad during the planning period for services in the urbanized area.

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Estimated Planning Funds

As with highway and transit funding, the Transportation Council estimated future planning funds by extrapolating recent annual allocations over the 25-year planning period. The Transportation Council receives federal planning funds that are matched by State and local funds. These funds are used to carry out the metropolitan transportation planning process, as prescribed by the FHWA and FTA. The funds are allocated on an annual basis and programmed through the Transportation Council's UPWP, which identifies the federally-funded planning activities to be carried out by the Transportation Council in a given year. Federal funding used to support UPWP tasks comes from two sources: FHWA Planning (PL) funds and FTA Section 5303 Metropolitan Planning Program (MPP) funds. NYSDOT and Dutchess County provide matching funds (15 and five percent respectively).

The amount of federal funding authorized for transportation planning has remained constant in recent years. For the SFY 2016-2017 program year, New York State received \$31.3 million in federal planning funds. These funds were allocated to the 14 MPOs in the State through a formula that accounts for the size of each MPO planning area.

The Transportation Council's 2016-2017 federal funding allocation totaled over \$661,200 (\$541,600 in FHWA funding and \$119,600 in FTA funding). The State and local match for these funds totaled over \$165,000, making approximately \$826,500 available for planning activities during the year. The Transportation Council does not anticipate that these annual

allocations will change significantly over the planning period, since planning funds have remained relatively flat in recent years. Therefore, it is estimated that almost \$20.7 million will be available for planning activities during the planning period.

In addition to the annual allocation of federal planning funds, the Transportation Council has unspent funds available from previous program budgets. These are funds that were apportioned to the Transportation Council, but not expended during a particular program year. As of March 2016, the estimated savings is approximately \$642,000. This increases the estimated amount of available planning funds to \$21.3 million.

Regional Transportation Authorities

MTA/Metro-North Railroad Funding

The MTA/Metro-North Railroad receives revenue from the FTA, MTA bonds, ticket sales, rents, and local subsidies. These are used to support capital and operating expenses. As mentioned earlier, the MTA has developed a 20-year Capital Needs Assessment (2015-2034) and a 2015-2019 Capital Program that identify investments and projects needed to maintain and improve passenger transportation services.

The MTA's 2015 Adopted Budget and 2015-2018 Financial Plan seek to maximize revenues and establish fiscal stability for the MTA. The 2015-2018 Financial Plan continues cost cutting initiatives begun in previous financial plans, which are projected to save \$1.75 billion annually by 2019. The current Financial Plan achieves stability without reducing service. The

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MTA's 2015-2019 Capital Program, which invests in renewing MTA's infrastructure and expanding the transportation network to meet future demand, is integral to MTA's ability to deliver services. The Financial Plan presents a strategy to fully fund the MTA's 2015-2019 capital program.

New York State Bridge Authority

The New York State Bridge Authority (NYSBA) is a wholly self-supporting public benefit corporation that relies on toll revenues to meet its operational, maintenance, and capital improvement needs. In 2013 tolls accounted for 98 percent of all NYSBA revenues (\$54.9 million). A standard passenger car toll is \$1.50 (cash)/\$1.25 (E-Z pass) per vehicle (paid at eastbound crossings). The NYSBA's 2015 Budget & Financial Plan estimated that revenues would remain stable through 2017 at approximately \$55 million annually, and then rise to over \$75 million in 2018 (partly through a toll increase). The NYSBA further estimated that total expenses will fluctuate through 2018, from a high of \$79 million in 2015 to a low of \$52 million in 2016. Though a shortfall was expected for 2015, 2016-2018 shows funding surpluses based on debt proceeds and toll increases. The NYSBA 2015 budget includes an initial \$25 million (out of a \$75 million total project cost) towards re-decking the north span of the Newburgh-Beacon Bridge.

Private Funds

The funds estimated to be available over the planning period do not include potential funding from private entities. The Transportation Council has not identified specific private funds, but recommends that they be used to the maximum

extent possible to fund transportation improvements, particularly those related to new development, such as intersection or signal improvements for large residential or commercial projects.

Fiscal Constraint Analysis

Moving Dutchess 2 recommends the investment of almost \$1.2 billion in highway, transit, and planning projects to preserve, maintain, and improve Dutchess County's transportation system over a 25-year planning period. The overall estimate of reasonably expected revenues totals over \$967 million, which is insufficient to carry out all of the Transportation Plan's recommendations (see Table 8-6). The largest shortfall exists between available and recommended funding for highway and bridge projects during the short- and long-range time periods. Therefore, fiscal constraint for *Moving Dutchess 2* is predicated on several key assumptions:

1. Federal and State transportation funding will need to track, and eventually surpass, the rate of inflation in order for agencies to effectively preserve the transportation system, let alone maintain a state of good repair. If labor or material costs increase at a faster rate than funding, agencies will be forced to delay projects or even close non-strategic transportation facilities. The strategic divestment of facilities is the least preferred alternative, but may be required if the Transportation Council's estimates of available funding prove too high.
2. Federal transportation funding programs will need to be consolidated into a smaller group of core programs,

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providing flexibility to the State and local agencies to program funds where needed. The Transportation Council supports the consolidation of programs that started with MAP-21 and continues with the FAST Act. The Transportation Council will revisit the recommendations in *Moving Dutchess 2* as funding allocations are made under the FAST Act.

3. *Moving Dutchess 2* outlines a preservation-based approach to maintain transportation safety and access. If a large number of facilities require major rehabilitation work or reconstruction, agencies may need to postpone lower-priority projects. To be clear, there is insufficient funding available to reconstruct the majority of the system or reach a true state of good repair. The Transportation Council will rely on individual agencies to identify which facilities require work beyond preservation.
4. Municipalities and agencies will need to apply for funding above and beyond the Transportation Council's normal allocations in order to implement some of the recommendations in *Moving Dutchess 2*. This includes finding funds from the Highway Safety Improvement Program (HSIP), Surface Transportation Block Grant Set-aside Program (STBGP), Community Development Block Grant Program (CDBG), and the regional Consolidated Funding Application (CFA) process.
5. Although the current estimates of available funding are sufficient to preserve the transportation system, the number of recommended projects may prove challenging for agencies to process. In order to move projects forward, agencies will likely need to bundle maintenance activities into system-wide, cyclical maintenance projects that can

be more easily reviewed and processed by federal and State reviewing agencies. These projects will need to be designed in a manner that reduces the need to acquire right-of-way, which is often a time consuming and expensive phase. Efforts to expedite project delivery should continue, especially through regular project coordination meetings between project sponsors and the NYSDOT-Region 8 Local Projects Unit.

Final Thoughts

Moving Dutchess 2 outlines a strategy to meet the transportation needs of Dutchess County. The Transportation Council developed this strategy through a review of existing guidance, input from State and local agencies, an analysis of transportation system data, and feedback from the public, which in turn, produced a series of project recommendations. The Transportation Council pursued this approach to increase the value of the Transportation Plan to decision-makers and the public, and to better position the Council to address emerging federal priorities related to performance-based planning and livability. The Transportation Council will update *Moving Dutchess 2* in five years and revisit the recommendations to ensure that they are still valid and reflect the area's priorities, the latest planning assumptions, and the most current funding estimates.

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Table 8-6. Fiscal Constraint Analysis by Overall Project Type and Time Period

Federal-aid Eligible Sub-totals ¹	Short-Range (2016-2020)		
	Recommended	Available	Balance
Highway & Bridge Projects	\$182,055,000	\$146,544,000	-\$35,511,000
Transit Projects	\$38,170,000	\$56,000,000	\$17,830,000
Planning Studies	\$3,145,000	\$4,132,500	\$987,500
Total	\$223,370,000	\$206,676,500	-\$16,693,500
	Mid-Range (2021-2030)		
	Recommended	Available	Balance
Highway & Bridge Projects	\$302,658,000	\$313,329,000	\$10,671,000
Transit Projects	\$85,136,000	\$112,000,000	\$26,864,000
Planning Studies	\$4,955,000	\$8,265,000	\$3,310,000
Total	\$392,749,000	\$433,594,000	\$40,845,000
	Long-Range (2031-2040)		
	Recommended	Available	Balance
Highway & Bridge Projects	\$501,313,000	\$362,943,500	-\$138,369,500
Transit Projects	\$97,552,000	\$112,000,000	\$14,448,000
Planning Studies	\$3,595,000	\$8,265,000	\$4,670,000
Total	\$602,460,000	\$483,208,500	-\$119,251,500
	Overall Planning Period (2016-2040)		
	Recommended	Available	Balance
Highway & Bridge Projects	\$986,026,000	\$822,816,500	-\$163,209,500
Transit Projects	\$220,858,000	\$280,000,000	\$59,142,000
Planning Studies	\$11,695,000	\$20,662,500	\$8,967,500
Total	\$1,218,579,000	\$1,123,479,000	-\$95,100,000

¹ Funding amounts rounded to the nearest hundred-thousand.