

Chapter 4

Looking Forward

New Connections charts a course for future transportation investment in Dutchess County over the next twenty-five years. As in the past, this investment will fund a broad range of transportation projects, including traditional construction and maintenance projects, support of transportation policies/programs, and work on local planning studies. Accordingly, the most difficult question this long range plan must answer is where this investment should take place. The PDCTC understands that answering such a question depends on many unforeseen factors and events, part of which is how the County's demographics will change over the course of a quarter century. This not only includes changes in absolute population and employment, but also changes in the make-up of that population and work-force: two more relevant issues being growth in the elderly population and shifts from non-retail to retail and service based employment. Understanding these demographic changes and their impacts on the transportation system is essential, if we are to effectively meet tomorrow's transportation challenges.

Looking forward, total population is expected to reach 300,000 within the next three years (2010 Census) and continue to increase through 2035.

Demographic Trends

Making accurate, long range forecasts for any variable, let alone people, is difficult. Even more problematic is trying to understand the impacts these potential changes may have on a local transportation system. The PDCTC collected demographic forecasts from a variety of agencies to help inform our understanding of the potential changes that might face Dutchess County in the next twenty-five to thirty years. The main sources for county-level demographic population and employment projections are the New York State Department of Transportation, the New York Metropolitan Transportation Council, and Dutchess County's Forecasting Project completed in 1996.

All sources predict greater population and employment growth, but there are differences in the rates. Projections prepared prior to the 2000 Decennial Census generally underestimated growth in large part due to mid-decade reductions in jobs at some of the County's major employers, including IBM and New York State. Looking forward, total population is expected to reach 300,000 within the next three years (2010 Census) and continue to increase through 2035. The PDCTC used the NYSDOT/Global Insight projections (prepared in 2005) to complete the county-level analysis for *New Connections*. Some highlights:

- Total population will increase to 333,000 by 2030; a 19 percent increase over 2000. Using Global Insight growth rates, the PDCTC estimates population to increase to over 342,000 by 2035.
- People over the age of 65 will more than double from 33,690 to 70,912, and will constitute 20 percent of total population, up from 12 percent.
- Number of people in traditional working age (19-65) will increase from 167,130 to 182,000; 55 percent of total population, a decline from 59 percent.

- The number of jobs in the County will increase by 43 percent from 114,500 in 2000 to over 163,000 by 2030 (Global Insight); the PDCTC estimates employment to reach 172,000 by 2035.
- The mix of jobs will change with a greater number of service-oriented jobs and fewer manufacturing jobs.

Population and employment growth will also occur in neighboring counties. Of note, the combined population of the three counties that make up the Mid-Hudson Valley TMA (Dutchess, Orange, and Ulster) is estimated to grow by 20 percent between 2000 and 2030, going from almost 800,000 to 961,000 (though not all will be located within the Poughkeepsie-Newburgh Urbanized Area). This includes a 29 percent increase in population for Orange County and a smaller 6 percent increase in Ulster County. Likewise, combined employment in the TMA is estimated to grow from 336,000 in 2000 to 434,000 by 2030, a 29 percent increase.

Given the almost certainty of population and employment growth in the County and greater region, the next task is to understand the implications of this growth on the County's transportation system, environment, and future development patterns. Clearly, we must assume that this growth will place additional pressure on existing infrastructure, public services, and resources.

Development Trends

The PDCTC has maintained a Major Projects database since the mid-1980s to track significant development projects in the County. For urban municipalities, the database tracks projects of 25 or more residential units or over 25,000 square feet of non-residential gross floor area; for rural municipalities, the threshold is 10 or more residential units or over 10,000 square feet of non-residential floor space. In the past twenty years 400 new residential, retail and office projects have been identified and tracked from proposal to completion. Residential development has been focused in southern Dutchess County and is evident in the population growth during the 1990s and into the current decade. New retail, office, and industrial uses have been concentrated along major arterial routes in the urbanized area. Since the Major Projects Report focuses on proposed new development, it does not completely reflect the significant private and public investment in redevelopment and smaller "infill" projects in Beacon and Poughkeepsie during the past decade. A review of the major projects database identified the following trends:

- Most new residential projects are located in southern Dutchess County, but there are significant new projects proposed in the Harlem Valley and northern Dutchess.
- Retail and office projects continue to be concentrated along major state highways.
- There is an increase in the number of residential developments that have attached/multi-family units.
- More residential projects contain a mix of single family and multi-family units.

Travel Forecasts

To better understand the impact of future development on the County's transportation system, the PDCTC maintains a travel demand model that simulates current and future

highway networks and land uses on a regional scale. The model uses a three step process (trip generation, trip distribution, and trip assignment) and relies on digital mapping – GIS (Geographic Information Systems) – to represent the system. The base network incorporates existing demographic data, along with trip generation, distribution, and assignment data to simulate vehicle travel patterns. Similarly, the model can measure the effects of changing demographics and land use patterns on the transportation system by using forecast data for housing and employment.

PDCTC uses information about population and employment growth and development trends to develop the forecast data for use in the travel model. The resulting information about vehicle miles traveled (VMT) as a measurement of congestion is useful in determining locations where additional investment may be necessary. Between 2002 (the current base year) and 2035 the level of vehicle traffic is expected to increase by 30 percent and motorists will experience congestion in more locations in the County, especially during peak travel periods.

There is less information about transit travel in the County. Transit accounts for about four percent of the work trips and less than one percent of all trips. The two local bus systems (LOOP and City of Poughkeepsie) maintain data on total transit trips (as measured by boardings), but do not have the capability to forecast future demand on either a system or route level. The Dutchess County Transit Development Plan, scheduled for completion in early 2008, will provide additional data and an assessment of needs for the next five years. Nonetheless, the PDCTC expects commuter demand for inter-county transit connections to remain very strong. This includes contracted services such as the Poughkeepsie-White Plains and Beacon-Newburgh bus shuttles, and also the Newburgh-Beacon ferry service, which has seen a steady increase in passengers since its start. The demand for inter-county connections is evident in the new bus service that will connect points in Ulster County with the Poughkeepsie train station.



(Photo courtesy of Fred Robbins)

The Metropolitan Transportation Authority (MTA) is in the process of updating its Regional Strategic Review of all its operations, including Metro-North Railroad. The initial analysis assumes growth on the Hudson and Harlem lines, including new demands for off-peak and weekend service. The strategy will support MTA's next 20 Year Needs Assessment (through 2030) and a new Five-Year Capital Program (2010-2014).

Implications of Change

Changes in population, jobs, land development and travel activity are interrelated, and the current trends and reasonable expectations point to growth in most activity measures. Population and job growth will translate into more demand for travel both within the County and to the surrounding region. Implications of these trends include:

- The demand for new housing, along with associated service and retail industries, will grow. This will occur across a broad range of locations, including traditional urban centers and undeveloped rural areas.

- There will be a greater mix and range of housing types to accommodate different segments of the population.
- Continued development of vacant land in suburban and rural areas is affecting capacity of major arterials in some communities. Scattered development makes the provision of effective transit more difficult.
- There will be traffic congestion in more locations and for longer periods of time. Even in places that may not register as officially congested, there will be a change in the travel experience and increased concerns about safety.
- Increased congestion may challenge our ability to meet and maintain air quality standards.
- A larger share of the population may work in service and retail jobs and travel outside the traditional weekday morning and afternoon peak periods. Weekend travel will increase.
- Public transit schedules may have to be adjusted to meet service and retail job hours.
- There may be a mismatch between the number and location of workers and jobs, which could increase regional travel.
- There may be greater opportunities for transit or carpooling for long distance (e.g. out of county) commuting trips.
- A larger segment of the County's population will be over 65 and may rely more on public transit and non-motorized transportation options, and the assistance of human service agencies for their transportation needs.
- The growth in the number of older residents may prompt the need to evaluate and retrofit roads to provide more visible lane markings and street signage, better lighting, increased sight distances, and longer merge lanes. These design improvements would aid all drivers.
- Increased demands on the transportation system, especially on roads and bridges, will affect the conditions of our aging infrastructure and increase costs of maintaining in acceptable condition.

These implications are mostly based on recent trends. They do not take into account significant changes in global or national forces that may impact our transportation system, such as disruptions to the supply or price of fuel, a downturn in national and regional economic activity, public and private responses to global climate change, or similar behavior altering events. The challenge continues to lie in finding the balance between competing needs and limited resources, and in the end, supporting policies, projects, and initiatives that will serve the most pressing long range transportation needs for Dutchess County.

Available Funds

SAFETEA, the current federal transportation law, retains the requirement for fiscally constrained transportation plans and transportation improvement programs. The projects and programs identified in the metropolitan transportation plan must have some assurance of being funded within the time period described. Any estimate of future funding is challenging, due to the difficulty of anticipating future federal, state, and local transportation priorities.

Federal and State Funds

PDCTC relied on funding estimates prepared by NYSDOT-Region 8 as the basis of its financial assessment (see Table 4-1). Dutchess County is part of the Poughkeepsie-Newburgh Transportation Management Area (TMA), which receives direct allocation of FHWA Surface Transportation Program (STP)-Large Urban funding, and FTA Urban Area (Section 5307), Job Access and Reverse Commute (JARC), and New Freedoms funding programs. Dutchess County also receives a direct allocation of Congestion Mitigation and Air Quality (CMAQ) funds, because of its status as a non-attainment area for Ozone. The remaining non-attributable FHWA funds and the New York State Dedicated Funds (SDF) are allocated to the NYSDOT-Region 8 for distribution among the six urban/metropolitan counties (Dutchess, Orange, Putnam, Rockland, Ulster and Westchester) and one rural county (Columbia). Region 8 took into account both historic expenditures and an analysis of various factors (population, population density, lane miles, and bridges) to create funding targets for the various parties (MPOs and counties). The targets are intended as guides, but over the long-range planning horizon represent reasonable estimates of available funding. For transit, the PDCTC assumed that current allocation of FTA and SDF transit funding would continue for the duration of the plan period.

Table 4-1. Estimate of Available Transportation Funding (2008-2035)

	Total Estimate 2008-2035 (\$-millions)
Federal Funding	
National Highway System	\$132.7
Interstate Maintenance	\$124.5
Surface Transportation Program	\$275.5
Highway Bridge Rehabilitation & Replacement	\$187.8
Congestion Mitigation & Air Quality	\$128.0
FTA Section 5307 ¹	\$66.0
FTA Section 5311	\$1.5
FTA Miscellaneous	\$3.1
Total Federal-Aid	\$919.1
State Funding	
State Dedicated Funding - Highway	\$1,376.7
State Dedicated Funding - Transit	\$5.0
Total State Funding	\$1,381.7
Local Funding	
Local Funding (FHWA Match)	\$11.2
Local Funding (FTA Match)	\$13.5
Local Funding (Dutchess County) ²	\$156.2
Total Local Funding	\$180.9
Total	\$2,481.7

¹ Does not include MTA Section 5307 earnings (\$2.2 million/year).

² Estimate based on recent Dutchess County capital funding and Consolidated Local Street and Highway Improvement Program (CHIPs) funding.

Local Funds

It has historically been difficult for the PDCTC to estimate funding sources that will be available from local governments (city, town, and village). The estimates developed by NYSDOT do include an estimate of non-federal funds required to match the federal highway funds on the current 80/20 split for locally-sponsored projects. The Dutchess County Department of Public Works spends an average of \$5.6 million each year in County and CHIPs (Consolidated Local Street and Highway Improvement Program) funding in addition to the required match for federal-aid projects. The PDCTC also calculated local funding required to match the Federal Transit Administration program funds during the plan period.

The combined estimate of resources available to support the metropolitan transportation system is approximately \$2.48 billion, or an average of \$87.6 million per year.

2008-2012 Transportation Improvement Program

Approximately \$139 million is programmed in the 2008-2012 TIP for a range of highway, bridge, transit, operations, and pedestrian and bicycle projects in Dutchess County. An additional \$376 million in multi-county and system-wide projects that include cyclical maintenance projects for signal replacements, highway sign improvements, pavement markings, and regional demand management and transit operations. The TIP also lists projects supported with non-federal funds by NYSDOT and regional authorities, including the Metropolitan Transportation Authority, the NYS Bridge Authority, and the NYS Thruway Authority.

Estimated Needs

In order to demonstrate fiscal constraint, the PDCTC cannot identify specific projects as committed unless it can reasonably assume sufficient funds will be available for implementation within the plan period, in this case 2008-2035. In a departure from previous plans, the PDCTC has elected to prepare a policy-based plan that does not commit to specific projects beyond those listed in the current 2008-2012 TIP.

Highway

In mid-2007 NYSDOT-Region 8 prepared an estimate of annual capital funding needs for its seven-county area. These needs totaled approximately \$622 million annually for state and local projects such as infrastructure maintenance, demand management programs, regional transit services, and intelligent transportation systems. Based on a historical distribution of funds, approximately 14 percent (\$89 million) of the Region's annual needs are assumed to be in Dutchess County (see Table 4-2). The needs estimate does include the post-TIP cost of several significant capacity projects that were identified in the Region's 12-year capital program.

Dutchess County DPW is responsible for almost 400 miles of county operated roads, in addition to 312 bridge and drainage structures (over five feet in length). Dutchess County DPW estimates annual capital funding needs of about \$20 million to maintain the existing system, a portion of which would be eligible for federal funding.

Table 4-2. Estimate of Anticipated Transportation Needs (2013-2035)

Transportation Plan Goals	Current Dollars* \$-millions	Year of Expenditure** \$-millions
System Management & Preservation	2,281.4	3,777.5
Highway Reconstruction	662.5	1,096.9
Bridge Rehabilitation & Construction	1,117.4	1,850.2
Highway & Bridge Maintenance	438.0	725.2
Transit Infrastructure & Operations	58.5	96.9
Pedestrian & Bicycle Infrastructure	5.0	8.3
Mobility & Accessibility	287.5	476.2
Highway & Bridge Capacity	40.0	66.2
ITS & Traffic Improvements	203.2	336.5
Transit & Demand Management	9.9	16.4
Pedestrian & Bicycle Capacity	34.5	57.1
Safety Improvements	69.0	114.2
Environment & Energy	4.9	8.1
Land Use & Economic Growth	50.0	82.8
Total	2,692.8	8,712.5

*Current dollars reflects needs based upon current costs with no inflation.

**Assumes an annual inflation rate of 4%.

Note: Based on combination of NYSDOT-Region 8 Estimate of Capital and Operating Needs and information from the Dutchess County Department of Public Works - Engineering and local transit agencies.

Local Transit

For *New Connections*, the County’s two public bus operators, Dutchess County LOOP and the City of Poughkeepsie, developed estimates for their future funding needs, which are split across three general areas: capital expenses, preventive maintenance, and operations. The estimates for future maintenance and operating needs are based on extrapolating annual transit funding levels out to 2035, while capital needs are primarily based on each system’s vehicle and equipment replacement schedule. The PDCTC expects federal transit funding levels to remain fairly constant through the life of this plan.

A comparison of reasonably available resources and estimated highway and bridge needs reveals an annual funding shortfall of between \$10 and \$23 million.

For the years beyond the 2008-2012 TIP, Dutchess County LOOP estimates a need of \$22.2 million for preventive maintenance and operations and \$18.6 million for capital needs between 2012 and 2035. Likewise, the City of Poughkeepsie estimates over \$12.5 million in preventive maintenance and operations and another \$17.7 million in capital needs for its bus system.

Fiscal Constraint Analysis

A comparison of reasonably available resources and estimated highway and bridge needs reveals an annual funding shortfall of between \$10 and \$23 million, depending on what is included. Although current funding resources will not support the identified level of capital investment activity, it is reasonable to assume that over the longer term funding resources will

keep pace with inflation and the demands of population and travel growth. The estimated transit funding will support the level of investment currently envisioned by the two local transit agencies.

During the period of the previous Metropolitan Transportation Plan, *Connections 2025*, the PDCTC expected investment to be focused on infrastructure repair and maintenance, safety, operational improvements, and some critical capacity expansion projects. The allocation of resources in *New Connections* is similar (Table 4-3), with 83 percent allocated to System Management and Preservation, and 10 percent for Mobility and Accessibility projects and activities. Remaining funds are allocated for safety Improvements, Land Use and Economic Growth, and Environment and Energy activities.

Nevertheless, for the period covered by this plan, it will be important for the PDCTC and its members to explore options to secure sufficient funds that maintain appropriate levels of investment in the regional transportation system.

Table 4-3. Allocation of Resources (2008-2035)

Transportation Plan Goals	TIP Costs 2008-2012 \$-millions	Long Term Post 2012 \$-millions	Total \$-millions	% of Total
System Management & Preservation	64.6	1,989.7	2,054.3	83%
Highway Reconstruction	3.0	613.6	616.6	
Bridge Rehabilitation & Construction	14.3	955.0	969.3	
Highway & Bridge Maintenance	29.4	357.6	387.0	
Transit Infrastructure & Operations	17.9	58.5	76.4	
Pedestrian & Bicycle Infrastructure	0.0	5.0	5.0	
Mobility & Accessibility	30.5	212.8	243.3	10%
Highway & Bridge Capacity	0.2	38.2	38.4	
ITS & Traffic Improvements	11.2	150.8	162.0	
Transit & Demand Management	2.7	9.8	12.5	
Pedestrian & Bicycle Capacity	16.4	14.0	30.4	
Safety Improvements	21.8	83.4	105.2	4%
Environment & Energy	1.5	10.4	11.9	<1%
Land Use & Economic Growth	20.1	46.9	67.0	3%
Total	138.5	2,343.2	2,481.7	100%

Sources: NYSDOT, DCDPW-Engineering, DC LOOP, and Poughkeepsie Transit

Notes and Assumptions:

1) Individual projects may have multiple components and/or fit into more than one category. Projects were placed into a category based on the main objective of the project.

2) 2008-2035 (28 years) Estimated Resources-Transit Operations and Capital Funding

3) All Regionally Significant or Non-exempt projects identified in the associated air quality are funded.

PINs 801030, 806207, and 875739 are included in Post 2012 long-term funding, while the remaining projects are included in the 2008-2012 TIP.

Regional Transportation Authorities

Metropolitan Transportation Authority (MTA) – Metro-North Railroad, a division of the MTA, is a public benefit corporation. Metro-North’s revenues are primarily from passenger collections (ticket sales), rents, and concessions. The Railroad also receives subsidies from MTA and the State of Connecticut to support its operations. In 2003, Metro-North’s system-wide capital needs for 2005-2024 were projected to be \$13.5 billion. The current Capital Program (2005-2009) includes over \$1.3 billion in projects. MTA is in the process of developing its Twenty Year Needs Assessment, from which the next Capital Program will be drawn.

New York State Bridge Authority – the Bridge Authority operates five vehicle bridges over the Hudson River between Bear Mountain and Catskill. It is a wholly self-supporting public benefit corporation, and relies on toll revenues to meet its operational, maintenance, and capital improvement requirements. For the three bridges with landings in Dutchess County, the Bridge Authority’s current 20-year capital program (2007-2027) includes \$28.4 million in short term projects and an estimated \$201 million during the remainder of the plan period.

New York State Thruway Authority – the Thruway Authority is an independent public corporation created by the New York State Legislature in 1950 for the purpose of financing, constructing, maintaining, and operating the State’s now 641-mile highway network. This network includes its mainline facility between New York City and Buffalo, and also major connections to Connecticut, Massachusetts, and New Jersey. In Dutchess County, the Thruway Authority maintains Interstate-84 under contract with NYSDOT, which still owns the facility and is responsible for capital construction and operations. The Thruway Authority estimates that it will cost approximately \$195 million from 2009-2035 to support maintenance and operations activities on the County’s portion of Interstate-84.

Significant Project Commitments

When measuring the future needs of our transportation system against available funding, it should be noted there are several large transportation projects on the horizon. These projects will consume a sizeable amount of available funding as compared to typical highway and transit projects, and may affect the amount of funds available for other projects.

NYSDOT Projects – The following projects include reconstruction of interchanges at two of the Hudson River bridges and intersection improvements on the Taconic State Parkway, the backbone of the mid-County corridor.

- Route 9/44/55 Interchange Reconstruction, City of Poughkeepsie (\$30 million)
- Interstate-84 at Route 9D Interchange Reconstruction, Town of Fishkill (\$29 million)
- Taconic State Parkway at Rossway/Tyrell Road Interchange, Town of Pleasant Valley (\$30 million)
- Interstate-84 East and Westbound Rest Area Improvements, Dutchess County (\$32 million)

These projects are listed on the 2008-2012 Transportation Improvement Program (TIP), the construction phases are expected to occur after 2012. Funding has been included in the Region 8 12-year capital program (2007-2019).

MTA/Metro-North Railroad – As mentioned previously, the Metropolitan Transportation Authority is in the midst of developing its next 20-year Capital Needs Assessment and 5-year capital program. Among the projects currently identified as priorities for Metro-North are improvements to the improvements of the Signal System, and improvements to the Poughkeepsie Yard and Main Line to benefit both passenger and freight rail services. Funding for implementation of these projects has not yet been identified.

New York State Bridge Authority – Among the significant projects contemplated for the next 20 years are deck replacements for both spans of the Newburgh-Beacon Bridge (\$115 million) and the Mid-Hudson Bridge (\$20 million).

Summary

The PDCTC understands the reality that the needs of our transportation system will always outstrip available resources. This has been the case in previous plans and remains with this one. As noted before, the task at hand is to prioritize those needs by consulting with the agencies responsible for maintaining and operating the various highway and transit components of the system. And maintaining is the most operative word, because simply maintaining the system in a state of good repair stands as a major task for the coming years.