

Infrastructure Planning and Investment: A ~~W I D E N I N G~~ Gap



MAY 2014

HUDSON VALLEY PATTERN FOR PROGRESS

Improving Hudson Valley Quality of Life Through Regional Solutions Since 1965

INFRASTRUCTURE TRENDS

In the past few months, the tragic gas explosion in Harlem and Vice President Biden's description of LaGuardia Airport as a "third world airport" made national news. In the Hudson Valley, the massive rebuilding of the Tappan Zee Bridge and a proposed \$153 million private desalination plant have made headlines. The common topic: Infrastructure. Today, the world demands solid and dependable underpinnings to the activities of daily life. Infrastructure means livelihoods—think of the 14.2 million workers employed nationally in the sector (Brookings, 2014). It means survival, especially in terms of critical resources such as water and roads. And it means a set of unprecedented challenges, at all levels.

In the Hudson Valley, hurricanes Irene, Lee, and Sandy tested the region's infrastructure and identified major gaps in our resiliency to these types of disasters. According to the National Climate Assessment, climate change does already and will continue to affect our transportation, water, wastewater and other infrastructure (White House, 2014).



The American Society of Civil Engineers graded the nation's infrastructure a D+ in 2013, an upgrade from a D in 2012 (American Society of Civil Engineers, 2013). The National Association of Manufacturers (NAM) notes that 70% of manufacturers believe that American infrastructure is in poor or fair shape and needs improvement. Surprisingly, 61% of NAM members would be willing to pay more taxes, fees, and tolls if certain that revenues would go to specific infrastructure improvements (NAM, 2013).

The United States (2.6%) has fallen behind China (8.5%), Japan (5.0%), South Korea (3.9%), Canada (3.9%), and others in the percentage of our GDP spent on infrastructure (McKinsey and Company, 2013). The amount spent on infrastructure in the United States has dropped precipitously in the last decade with the majority of that decrease on the state and local side. Total government spending on infrastructure nationally has dropped 25% between 2002 and 2013. As citizens we expect our infrastructure to work and to work well. When it works, people barely notice it. But when it doesn't, it affects us all.

PATTERN SURVEYS THE REGION

In light of the decline in the condition of infrastructure, concerns of municipal officials, and limited government financial resources, Hudson Valley Pattern for Progress has chosen to research and evaluate the state of the Hudson Valley's infrastructure: not the big national headline projects, but the every day water, sewer and road systems, or infrastructure with a "little i". A survey conducted in late 2013 to early 2014 is the start of that work.

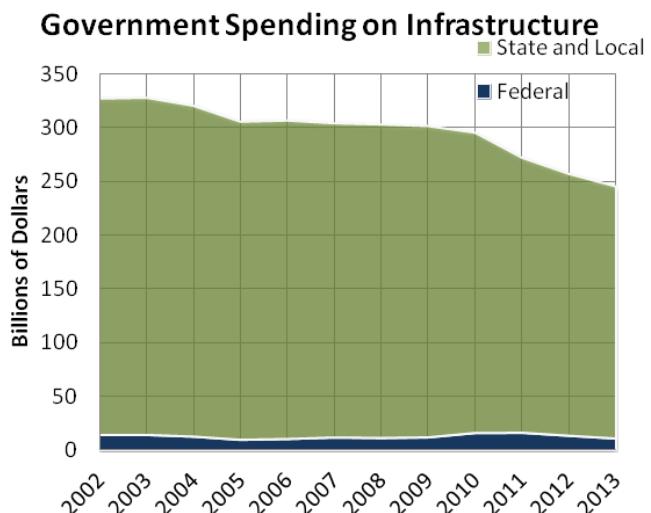
This survey provides a gauge of current sentiments about infrastructure in the Hudson Valley. Pattern surveyed all mayors and supervisors in the nine-county region comprised of Columbia, Dutchess, Greene, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester counties.



The Pattern survey contained 27 questions with a 52.9% response rate far exceeding standard survey response rates. Ultimately, 126 out of 238 municipalities responded. Response rate by county varied from a high in Ulster County of 80% to a low in Rockland County of 29%. Given the opportunity to remain anonymous, 28% of respondents requested anonymity.

The survey focused on water, sewer and transportation infrastructure and its management; however, the survey also asked about other types of infrastructure such as natural gas, broadband and cellular service.

In addition to the survey, Pattern gathered data from outside sources including the Office of the New York State Comptroller, the Federal Highway Administration, the Federal Bureau of Economic Analysis as well as other sources.



Source: U.S. Bureau of Economic Analysis: Real Government Consumption Expenditures, Non-Defense Spending

HUDSON VALLEY INFRASTRUCTURE: IN POOR CONDITION

Leaders in Hudson Valley cities, towns and villages expressed significant concern over the state of their infrastructure. Water infrastructure is perceived to be in the worst shape with 60% of respondents rating their water infrastructure as "needing work in the next three years" or at risk of imminent failure." A majority of survey respondents expressed concerns over water and sewer distribution systems, including cracked, leaking, fragile, and in some cases lead water distribution systems many of which are more than 100 years old. Road infrastructure is considered to be in good shape by 58% of respondents. Of those that said major work is needed, 5-7% of municipal respondents identified that they have some roads, bridges, water and sewer infrastructure at risk of imminent failure.

"Our sewer plant needs to be expanded or a second plant needs to be built. Currently we are under a consent order with DEC and new hook ups are not allowed. This has caused a complete stop of all economic development in our town. Further our town has significant wetland issues which cause septic failures on a regular basis. Residents want to connect to the system but we are restricted. The infrastructure issue is real for us and it is a multimillion dollar problem."

-Town of Coxsackie Supervisor Alex Betke



The Hudson Valley is dependent not only on our Hudson River crossings, but also on 3,000 plus other bridges that cross other water bodies and transportation systems. According to the Federal Highway Administration, 13% of the Hudson Valley's bridges are deficient and 32% of our bridges are functionally obsolete.

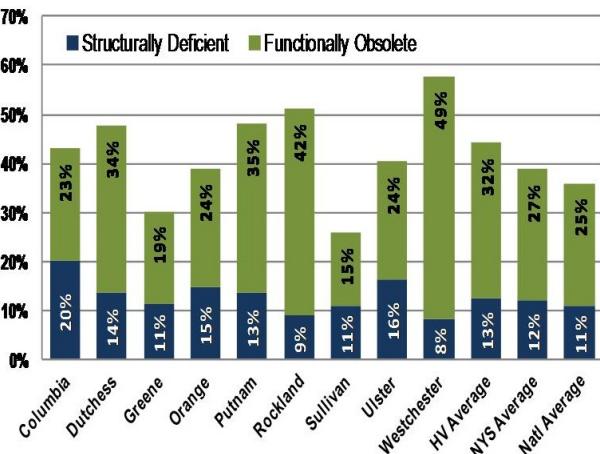
In addition to exceeding the rest of New York State and national averages in numbers of deficient bridges, according to the American Society of Civil Engineer's Infrastructure Report Card, New York State has the highest bridge repair costs in the country.

Surveyed Leaders Respond: These are a concern for my community	Natural Gas Distribution	Broadband Availability	Cellular Service Availability
Columbia	16.7%	50.0%	75.0%
Dutchess	38.5%	60.0%	53.3%
Greene	85.7%	71.4%	57.1%
Orange	35.0%	36.8%	36.8%
Putnam	0.0%	33.3%	0.0%
Rockland	14.3%	57.1%	42.9%
Sullivan	60.0%	83.3%	100.0%
Ulster	31.3%	31.3%	76.5%
Westchester	24.0%	24.0%	42.3%
Total HV	33.3%	43.4%	53.7%

Surveyed Leaders Rate Their Infrastructure	Water	Sewer	Roads	Bridges
Needs Major Work in Next 3 Years	60%	51%	42%	49%
Needs Routine Maintenance	40%	49%	58%	51%

More than one in five municipal leaders believe that their systems will be unable to meet future needs. Twenty-three percent of respondents believe that they do not have sufficient water supply capacity to meet future demand. An even greater number, 35% of respondents, believe that they do not have sufficient capacity to meet future demand for wastewater treatment. Leaders expressed concern that these limitations are constraining economic development opportunities and that new development would overtax already strained systems.

Hudson Valley Bridge Conditions



Source: U.S. Department of Transportation, Federal Highway Administration, 2013 National Bridge Inventory

The Pattern survey asked municipal leaders about other infrastructure concerns. Town, village and city municipal leaders in rural counties of Greene, Sullivan and Columbia counties expressed significant concern about cellular service, broadband availability and natural gas distribution. Concerns of the rural counties are not surprising given the limited availability of the communications and gas infrastructure. Columbia and Greene have the lowest broadband penetration in the region with only 18.4% and 13.8% of their populations having access to 6 mbps download/1.5 mbps upload speeds. Large swaths of Sullivan and Ulster Counties lack cellular service. But even in the more populated suburbs of New York City where you would expect cellular coverage to be ubiquitous, over 42% of responding municipal leaders in Rockland and Westchester indicated concerns about cellular service. Where cell coverage exists, the level of service may not be adequate for the needs of business and residential users.

HUDSON VALLEY INFRASTRUCTURE: REDUCED PUBLIC INVESTMENT

Since 2012, New York State municipalities have been budgeting under the tax cap. Moreover, municipal revenues have declined during the recession while skyrocketing pension fund and healthcare costs have far outpaced inflation, taking up ever increasing portions of local municipal budgets. Although the federal stimulus program provided an increase in infrastructure investments, and recent natural disasters have required larger investments in infrastructure, the overall trend is still ominous. Reduced capital investments in infrastructure, and stagnant operations and maintenance expenditures, have created overall underinvestment in infrastructure that could result in far greater future costs. Survey respondents lamented that capital expenditures count towards the municipal tax cap unlike school districts.

	2002		2012			Percent Change 2002-2012			
Hudson Valley Municipality Type	Total Infrastructure Capital Expenditures	Total Infrastructure Capital as % of Total Expenditures	Total Expenditures	Total Infrastructure Capital Expenditures	Total Infrastructure Capital as % of Total Expenditures	Total Expenditures	Total Infrastructure Capital Expenditures	Total Infrastructure Capital as % of Total Expenditures	Total Expenditures
Counties	\$142,037,292	4%	\$3,723,736,502	\$221,785,262	4%	\$5,525,135,693	56.1%	5.2%	48.4%
Cities	\$41,700,203	5%	\$871,535,846	\$36,108,666	3%	\$1,283,697,040	-13.4%	-41.2%	47.3%
Towns	\$84,431,763	7%	\$1,147,958,061	\$104,700,686	6%	\$1,712,417,182	24.0%	-16.9%	49.2%
Villages	\$53,583,607	10%	\$555,221,449	\$66,079,582	8%	\$ 824,603,154	23.3%	-17.0%	48.5%

Source: Office of the New York State Comptroller, Financial Data for Local Governments, Summary Level Data for transport, utilities and sanitation accessed https://www.osc.state.ny.us/localgov/datanstat/findata/index_choice.htm

Hudson Valley cities, towns and villages are spending substantially less of their overall budgets on infrastructure capital over a ten-year period. From 2002 to 2012, the relative share of infrastructure to total budget in cities dropped 41%, towns dropped 16.9% and in villages it dropped 17%. Only counties budgets saw an increase during this period of 5.2%.

While much of the drop in infrastructure spending appears in state and local municipal budgets, the source of those dollars has been federal. Road infrastructure funding through the Federal Highway Trust fund is funneled into the majority of the region through Metropolitan Planning Organizations. Without federal action, the Highway Trust Fund will run dry in 2014. The major source of that funding is the federal gas tax, unchanged at 18.2 cents per gallon since 1993. The majority funding for water and sewer infrastructure in New York State is also federal and flows through the Environmental Facilities Corporation (EFC), which operates low-interest loan funds out of a pool of revolved funds and a federal allocation received each year. EFC has changed the way it allocates resources between 2013 and 2014, refining its ranking system which historically prioritized communities operating under a consent decree, but could leave regular maintenance projects unfunded. With this change, EFC is allocating funding to any community that can show its project is ready to go.

Regional Economic Development Council Awards (9 county study area includes Capital District and Mid-Hudson)			
	Total CFA awards	Infrastructure CFAs	% Infrastructure
2011	\$ 75,280,349	\$ 7,637,375	10.1%
2012	\$ 95,749,395	\$ 18,915,311	19.8%
2013	\$ 65,229,246	\$ 12,631,677	19.4%

Department of State. Our analysis included grants to publicly owned infrastructure or planning related to publicly owned infrastructure. Greene and Columbia counties are in the Capital District REDC while the rest of the region comprises the Mid-Hudson REDC. The percentage of the total Regional Council funds that are dedicated to infrastructure provide a substantial source of funds.

PRIVATE FINANCE FOR INFRASTRUCTURE



As municipalities look to maintain, upgrade and expand infrastructure, they should consider public private partnerships but must ensure that those agreements provide taxpayers value over time. With constrained public resources, more municipalities have looked to public private partnerships both for private construction and operation of facilities. In our survey region, 27.8% of respondents have private water systems in existing operation and 14% rely in part on private sewer systems.

According to the Office of the New York State Comptroller, municipalities must ensure that PPP steers clear of failure to identify full value of public property, unfavorable pricing, unrealistic expectations, and potential for budget gimmickry (Office of the New York State Comptroller, 2011). Survey respondents identified concerns with substandard construction and lack of investment for maintenance for privately owned infrastructure when the municipality may ultimately be forced to assume responsibility. Careful crafting of agreements upfront can avoid these pitfalls.

MANAGING OUR ASSETS: PAY NOW OR PAY MORE LATER

Municipalities can get the most value out of physical assets by maintaining them over time. The U.S. Environmental Protection Agency (EPA) and the NYS EFC have both begun training municipalities to use asset management as a tool for maintaining water and sewer infrastructure. The asset management approach is more commonly used for road, bridge and public buildings. Using asset management techniques will provide reduced costs over time. Maintaining physical assets on a regular basis can prevent much more expensive and extensive repairs later. According to the Cornell Local Roads Program, \$1 spent on maintenance at the routine maintenance stage will save \$4-5 in major rehabilitation down the road (Cornell Local Roads Program, 2006).

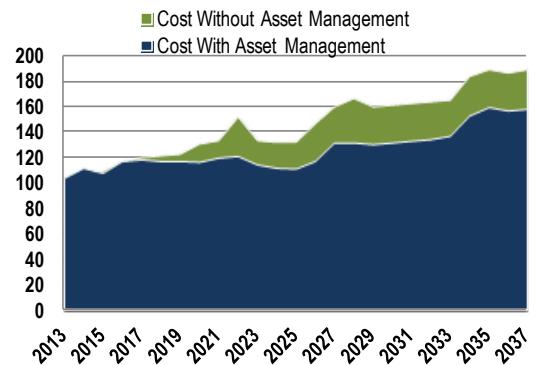
Deferring maintenance on other forms of infrastructure such as water and sewer facilities also leads to much higher replacement costs later on as well as reduced levels of service. Lack of preventative maintenance and lack of planning for the useful life of assets can have disastrous consequences.

Steps of Asset Management

(US Environmental Protection Agency, 2003)

- Inventory your assets
- Prioritize maintenance, rehabilitation and replacement
- Develop an annual estimate of needed reserves and capital improvement budget
- Implement the asset management plan
- Review and revise the asset management plan

Benefits of Asset Management



Source: EPA, The Fundamentals of Asset Management

"Public servants must explain to their constituents that delayed maintenance results in a future, unnecessarily increased tax burden. Better to spend the dime now than the dollar later. The next generation will look back upon us kindly."

-Town of Woodstock Supervisor Jeremy Wilbur

HV COMMUNITIES ARE NOT PLANNING FOR THE FUTURE OF THEIR INFRASTRUCTURE

The results of the Pattern survey are clear: Hudson Valley communities are not taking an asset management approach to maintaining their infrastructure. Few of them are producing capital improvement plans. Capital improvement plans are short-range plans that identify expected capital projects and equipment expenses, providing a schedule of work that connects municipal budgets to strategic plans. A majority of the respondent municipalities (57%) do not do capital improvement planning. The actual number of municipalities with capital improvement plans may be even lower as municipalities responding to the survey may simply have better infrastructure management. Multiple respondents noted that they have only recently implemented capital improvement planning as a part of their budgeting process.



Benefits of Capital Improvement Planning

(Office of the New York State Comptroller)

- Guides decision making for expenditures of taxpayer dollars
- Establishes priorities and determines infrastructure needs
- Provides a tool to compare maintaining versus acquiring new
- Creates public input opportunity

"Several of my buildings are 60 or more years old. Long term repairs were neglected by many previous administrations and we are now struggling to improve obsolete, decaying buildings because of others' shortsightedness."

-Village of Haverstraw Mayor Michael Kohut

"We have difficulty with continuing break downs. Last year the 3 lift stations all failed and needed replacing. The plant is near full capacity but we cannot manage the influx of storm water during storms of heavy rains. We are looking to upgrade the facility but were not awarded the grant 2 years ago. We will be applying for a new grant."

-Town of Rosendale Supervisor Jeanne Walsh

The transportation improvement plans for the Hudson Valley emphasize maintaining the existing system over expansion. But other types of infrastructure do not have plans that emphasize maintaining assets. Moreover, municipal budgeting and the election cycle work as natural disincentives to provide good capital improvement planning. Elected officials are under pressures to reduce expenditures and to provide spending for those items most desired and most visible to their constituents. Public dialogue on the need for long-term management of infrastructure as assets must be encouraged. Federal and State infrastructure funding should reward municipalities with asset management and capital improvement planning.

MANAGING OUR ASSETS: PLANNING FOR THE FUTURE

Infrastructure that is out of sight should not be out of mind. Capital improvement planning is more common in certain areas than others. Wastewater treatment capital planning was the least common element of local capital improvement plans with only 49% of respondents' plans covering that topic. Slightly more plans (57%) address water supply. On the other hand 76% of the plans cover roads and bridges and 78% cover public buildings.

Not only do more municipalities need to engage in capital improvement planning, but those that do prepare capital plans and budgets now need to expand them to incorporate a wider variety of infrastructure.

Hudson Valley municipalities need to begin to manage their infrastructure as assets. By inventorying infrastructure, prioritizing maintenance and rehabilitation projects and preparing capital improvement plans and budgets, municipal leaders will be better able to articulate to taxpayers why current investment to maintain aging infrastructure is a wise investment.

The Hudson Valley has experienced a number of extreme weather events over the last three years resulting in major impacts to infrastructure. Hurricanes Irene, Lee and Sandy damaged significant infrastructure requiring major road and bridge replacement efforts as well as public transportation reconstruction. In addition, the severe flooding encountered by some communities damaged municipally owned structures.

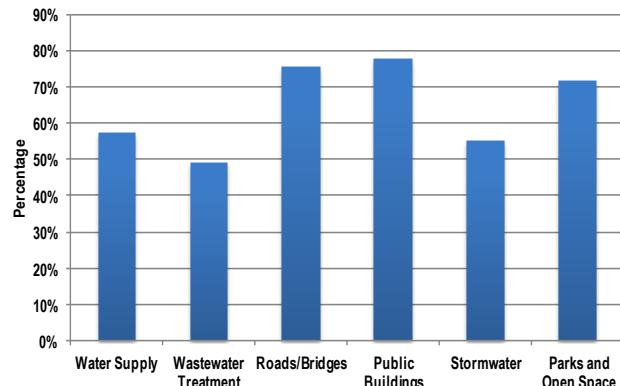
Nearly all communities responding to the survey experienced impacts from these superstorms with 81% experiencing downed tree limbs, 78% impacted by flooding, 70% suffering from extended power outages, and 56% seeing damage to roads.

In order to minimize the loss of life and property from these types of events communities are encouraged to adopt hazard mitigation plans. Hudson Valley communities have a fairly high rate of adoption of hazard mitigation plans according to the Pattern survey.

On average 76.6% of respondents have hazard mitigation plans and multiple communities noted that they are part of multi-jurisdictional hazard mitigation plans. All the counties in the region except Westchester currently have a county-wide hazard mitigation plan and Westchester is in the process of adopting one.

Given the extensive impacts that the region saw from Sandy, Irene and Lee, it more critical than ever for communities to take sustained action to reduce or eliminate long-term risk to people and their property from hazards. The New York Rising Community Reconstruction Program attempts to do just that, with an allocation of \$42 million focused on planning in the most severely impacted communities in the region. The planning effort emphasizes resiliency with multiple projects and plans being developed in the Hudson Valley.

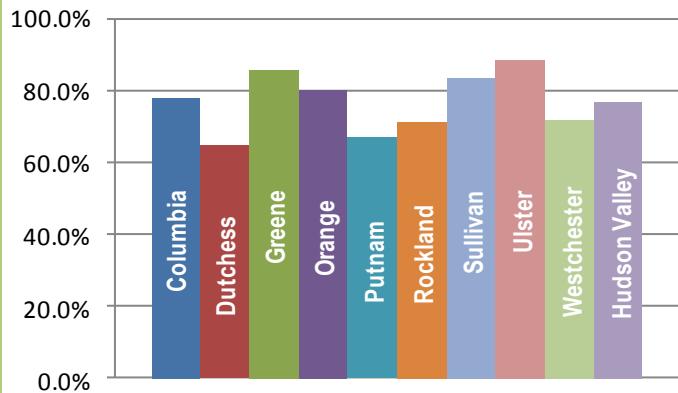
Surveyed Elements of Existing Hudson Valley Capital Improvement Plans



"The City has experienced several recent failures in its wastewater collection system. The system is more than 100 years old and extensive upgrades are necessary to prevent future failures, increase efficiency, and reduce combined sewer overflow events through the City's combined sewer overflows. Implementation of the City's Long Term Control Plan will also come at a very large expense."

- City of Newburgh Engineer Jason Morris, PE

% of Survey Respondents with Hazard Mitigation Plans



Survey Respondents Impacts from Hurricanes Sandy, Irene and Lee	
Extended power outages	70.60%
Downed trees/limbs	81.00%
Local flooding	78.60%
Damage to roads	56.30%
Damage to bridges	30.20%
Displacement of residents	40.50%

SHARED SERVICES, COLLABORATION AND REGIONAL APPROACHES

The costs associated with maintaining municipal infrastructure in the Hudson Valley are staggering. One of the potential solutions is the sharing or consolidation of services. The notion of sharing services and the consolidation of infrastructure has been around for a long time and has been typically done on a handshake. Municipalities cannot effectively and efficiently continue to maintain their infrastructure alone. Pattern has identified examples of communities that have “taken the plunge” and are effectively managing formal agreements.

- With the assistance of a grant from Dutchess County, the City of Beacon, Town of Fishkill and Village of Fishkill entered into an inter-municipal agreement to examine the feasibility of a tri-municipal organization for sewer service delivery and will include consideration of consolidation.
- The Town of Rye is selling its town hall and co-locating with the Village of Port Chester which will house both municipalities' offices, courts, Port Chester police station, court operations for Rye, Port Chester and the Village of Rye Brook as well as commercial retail space.
- The Dutchess County Water and Wastewater Authority operates 9 water systems, 3 sewer systems and a water transmission system serving 10 separate municipalities.
- The towns of Marbletown, Rosendale and Rochester have chosen to co-locate their court facilities, and Rosendale's town hall into a former elementary school in Rosendale but on the border of all three communities.

Pattern survey respondents embraced shared services and collaboration with lower levels of government. So, for example, over 55% of respondents to the survey acknowledged that they are already collaborating with other local government municipalities on infrastructure and related issues, 47% acknowledged collaboration with county governments and over 31% acknowledged collaboration with state agencies. Respondents identified that they would be

interested in future collaboration with neighboring municipalities (37%), with counties (42%) and with state agencies (53%). Thus, opportunities for shared services and collaboration on infrastructure are a ripe area for future policy.

Some municipalities are not willing to collaborate with others on infrastructure issues: 6.6% are not interested in collaborating with another municipality, 10.6% are not interested in collaborating with their respective counties and 14.5% are not interested in collaborating with the state.

Despite some resistance to sharing resources there are several State initiatives that help to stimulate this approach. The Department of State's Local Government Efficiency (LGE) program seeks to get municipal governments to work together to achieve cost reductions and greater efficiencies. This year Governor Andrew Cuomo created an additional incentive as part of his continuing efforts to reduce property taxes: municipalities showing a 1% or more savings in their taxes through merger or sharing of services can obtain a rebate to their taxpayers in the amount equal to the increase in the tax levy in that year. The effort must continue to show increasing savings of at least 1% in years two and three. Thus, large items like infrastructure may be excellent areas for municipalities to achieve this objective. Municipalities seeking to use infrastructure collaboration for this must confirm eligibility with the State Division of the Budget.

$$\text{Shared Infrastructure} + \text{Local Services} = \text{Shared Responsibility}$$

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RECOMMENDATIONS



AT THE LOCAL MUNICIPAL GOVERNMENT LEVEL:

ASSET MANAGEMENT AS AN APPROACH TO INFRASTRUCTURE

Municipalities must begin to take an asset management approach to infrastructure. This includes creating an inventory of existing assets, assessing the life-cycle of assets and prioritizing maintenance versus major rehabilitation or replacement.

INSTITUTE CAPITAL PROJECT PLANNING AND BUDGETING

Hudson Valley communities need to prepare capital improvement plans addressing roads, bridges and buildings as well as water and sewer infrastructure. These plans will draw the connection between long-term strategies and annual budgets.

MAINTAIN EXISTING INFRASTRUCTURE

Towns, villages and cities must work to maintain existing infrastructure by allocating needed capital maintenance resources and articulating to taxpayers the long-term savings that will be achieved through extending the life of assets.

SHARE SERVICES AND EMBRACE REGIONAL PLANNING FOR INFRASTRUCTURE

Larger organizations are able to leverage more resources towards asset management. Municipalities should look to share infrastructure services and the region should begin regional infrastructure planning.

USE PRIVATE CAPITAL WISELY

As municipalities seek additional resources that fall outside of the 2% tax cap, they should consider public private partnerships. These agreements must ensure that privately developed infrastructure protects taxpayers.

AT THE STATE POLICY LEVEL:

DESIGN-BUILD CONTRACTING

The Tappan Zee Bridge can serve as a model for design-build procurement which allows design and construction teams to submit joint bids, but continued use of this tool will take state legislative change.

TAX INCREMENT FINANCING (TIF)

Legislation to allow TIFs, which use future gains in real estate taxes to subsidize current infrastructure improvements, should be embraced in New York State which would bring New York State into alignment with the majority of states in the country.

REWADING MAINTENANCE OF ASSETS

State funding for infrastructure should provide incentive for maintenance of existing assets by prioritizing funding for municipalities with capital improvement plans.

**Hudson Valley Pattern for Progress is the policy, planning and advocacy organization
that creates regional, balanced and sustainable solutions to quality-of-life issues
by bringing together business, nonprofit, academic and government leaders
to collaborate on regional approaches to affordable/workforce housing, municipal sharing
and local government efficiency, land use policy, transportation and infrastructure issues
that most impact the growth and vitality of the regional economy.**

Become a member of Pattern and be part of the solution!

HUDSON VALLEY PATTERN *for* PROGRESS