PDCTC

Poughkeepsie-Dutchess County Transportation Council

ROUTE 22 CORRIDOR STUDY:

CORRIDOR MANAGEMENT PLAN

prepared by

Howard/Stein-Hudson Associates, Inc.
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TRANSPORTATION

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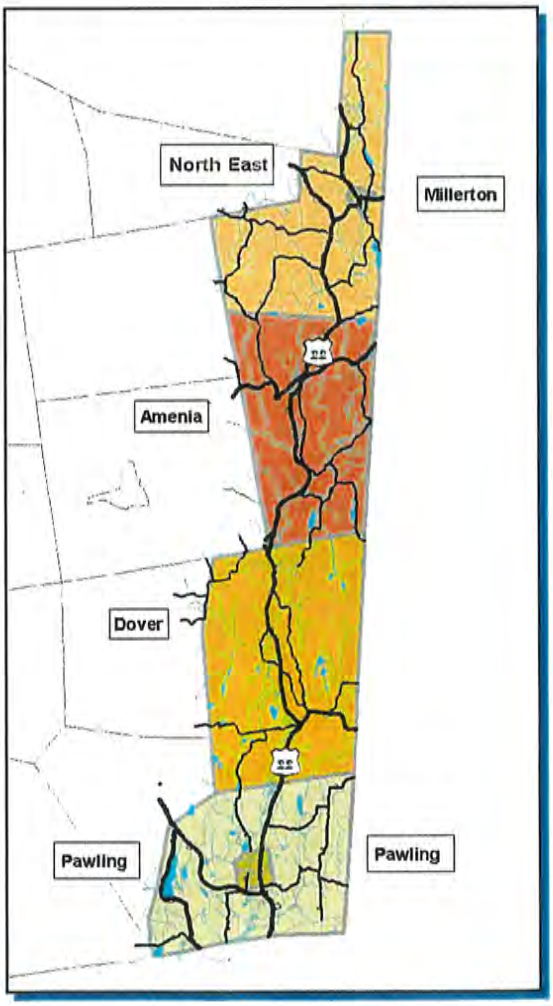
SECTION 1: INTRODUCTION

In mid-2000, the Poughkeepsie-Dutchess County Transportation Council (PDCTC) and the Harlem Valley Partnership (HVP) initiated the Route 22 Corridor Management Plan. **The main purpose of the project is to develop a regional corridor management plan to guide the affected municipalities and NYSDOT in making decisions about future land use, site access, and transportation proposals.** The project also advances the Dutchess County Greenway Connections program that seeks to build a network of connecting routes and improve development patterns in the County.

In Dutchess County, Route 22 runs from the Putnam County line just south of Pawling to the Columbia County line north of Millerton—a length of approximately forty miles. In the Harlem Valley, Route 22 is an uncontrolled-access, arterial highway that serves an important role for both through-traffic and the support of development. The study area includes six municipalities:

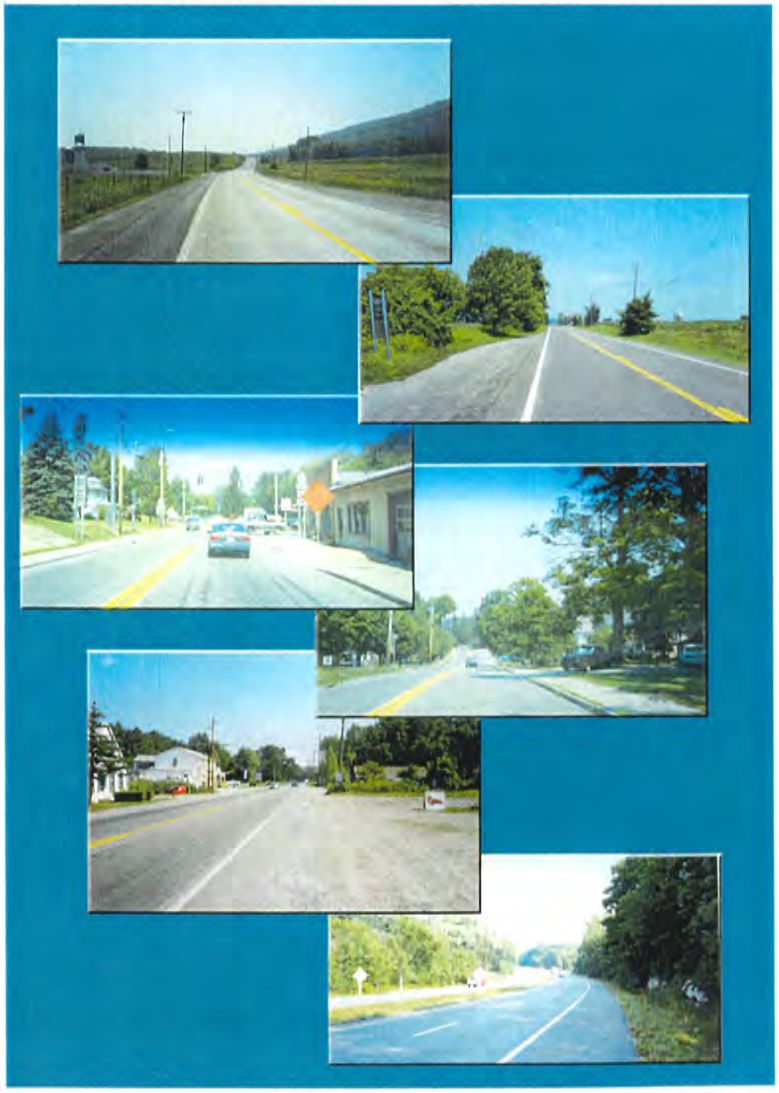
- **Millerton Village**
- **North East**
- **Amenia**
- **Dover**
- **Pawling Village**
- **Pawling**



Dutchess County hired the consultant team of C&S Engineers, Inc., and Howard/ Stein-Hudson Associates, Inc., to assist PDCTC and HVP with the project. In addition, HVP established a steering committee of local and regional interests to guide the development of the Corridor Management Plan. The role of this Corridor Project Task Force (CPTF) is to provide the project team with insight into the area's transportation needs, desires, expectations, and goals for development within the six communities. The Task Force met with the project consultants and PDCTC and HVP staff numerous times over the course of the study to review project materials and provide local knowledge and insight during the development of the Management Plan.

PROJECT STEPS

The development of the Route 22 Corridor Management Plan began with an agreement about the project scope. The HVP had identified the future development of the Route 22 Corridor as one of the key issues facing the communities in eastern Dutchess County. The HVP and PDCTC worked with the consultant team to define the overall purpose of the project and identify the specific components or phases of the corridor plan. The major phases of the project included **establishing a vision for the corridor, conducting an inventory of existing conditions, completing a corridor build-out and capacity analysis, and developing the**



Corridor Management Plan. The proposed Corridor Management Plan provides opportunities for development of land within the corridor while avoiding future traffic and safety problems and enhancing multimodal options.

The consultant team prepared detailed documentation of the project progress for review by the staff and CPTF throughout the course of the project. The major reports included:

- **Existing Operating Conditions, Issues, and Problems (March 2001)**
- **Future Development and Associated Operating Conditions (June 2001)**
- **Statement of Goals and Objectives (August 2001)**
- **Statement of Needs (November 2001)**

Major highlights of these reports were presented at the public meetings in June and November 2001 to provide a context for the discussion and evaluation of ideas and suggestions related to the project.

ESTABLISHING A VISION FOR THE CORRIDOR

This phase of the project occurred after the study team had completed the inventory of existing conditions and the corridor build-out and capacity analysis phases of the project (see below). The major activities included an evaluation of the planning goals in the municipal master plans for the six communities and the Dutchess County Greenway Connections program, and public discussion and agreement about how development should occur in the corridor. The main outcome was a set of eleven goals and objectives for the Route 22 Corridor that could be used to evaluate potential actions.

Goal 1: **Encourage growth in defined areas;**
Goal 2: **Maintain rural character;**
Goal 3: **Improve pedestrian safety, mobility, and accessibility;**
Goal 4: **Facilitate traffic flow;**
Goal 5: **Improve transportation safety;**
Goal 6: **Promote coordination between state and municipalities;**
Goal 7: **Recognize the balance between local and through-traffic;**
Goal 8: **Improve bicycle safety, mobility, and accessibility;**
Goal 9: **Enhance public transportation;**
Goal 10: **Improve connections between transportation modes; and**
Goal 11: **Enhance way-finding signage.**

Discussion of the goals was the main topic of the first public meeting in June 2001. There was a broad consensus across the six communities that encouraging growth in defined areas and maintaining rural character were the most important goals for the corridor. A separate report, **Statement of Goals and Objectives,** includes additional information about this phase of the project.

INVENTORY OF EXISTING CONDITIONS

The Route 22 Corridor is large and complex; it stretches forty miles through six municipalities. The inventory of existing conditions included a description of transportation facilities, environmental features, land use and zoning concerns, and information about the operating characteristics (e.g., traffic volumes, turning movements, capacity analysis) of Route 22. NYSDOT assisted with the collection of some of the project data. In addition, the consultants conducted surveys of corridor users to determine their origins and destinations. The detailed information is contained in the **Existing Operating Conditions, Issues, and Problems** report.

CORRIDOR BUILD-OUT AND CAPACITY ANALYSIS

The next phase of the project included an assessment of anticipated future growth and its impact on Route 22. For this step, the consultants worked with local municipal leaders to verify information about current land use and zoning, establish projections of future activity, and review current transportation issues. PDCTC staff and the consultants used the information about the transportation network, the operating characteristics, future land use, and corridor user surveys to estimate future traffic and its impact on Route 22 using a traffic simulation model. The **Future Development and Associated Operation Conditions** report summarizes this work.

The information about both existing and anticipated conditions were presented to, and discussed by, the CPTF and the participants in the first public meeting, and it formed the basis for the fourth project report, **Statement of Needs,** which summarizes the major transportation and land use issues within the Route 22 Corridor.

CORRIDOR MANAGEMENT PLAN

During the course of the study, the project team provided information to the public about the purpose of the study and its schedule of events and explained how inter-

ested individuals and groups could participate. As mentioned previously, two public information meetings were held (June 19 and November 27, 2001), and the participation of community members helped to define the project goals and guide the development of potential strategies.

The Project Goals and the Statement of Needs reports were used to develop improvements that respond directly to the transportation issues and problems within the corridor. The **Corridor Management Plan** describes the list of alternative land use and transportation management strategies that were developed to mitigate the identified problems and needs.

The remainder of this report is divided into four major sections. The first (**Develop and Screen Strategies**) lists the strategies that were developed for the Route 22 Corridor and describes the initial screening process that was used to determine which strategies would be progressed for further evaluation. The next (**Evaluation of Progressed Strategies**) discusses the more detailed evaluation process that was used to determine which of the potential strategies would be recommended for implementation. The information is summarized in a large matrix. The **Plan Recommendations** section presents information about the strategies that are recommended for implementation in at least one municipality. The strategies are categorized by both time period and location. This section also includes a map of physical improvements (Harlem Valley Transportation Plan) recommended along Route 22. Finally, **Next Steps** provides a preliminary outline of the work that needs to be done to begin making the changes envisioned in the Corridor Management Plan.

Detailed descriptions of all of the strategies are presented in the two appendices. **Appendix A** includes all of the strategies that were fully evaluated. **Appendix B** describes those that were eliminated before final evaluation.

SECTION 2: DEVELOP AND SCREEN STRATEGIES

The project team used information from the technical reports and the Statement of Goals to develop an extensive list of actions that could be implemented within the Route 22 Corridor. The potential actions, both long- and short-term, are intended to address the transportation issues through 2020, the forecast period of the project. The strategies were developed in sufficient detail to allow for a basic technical, environmental, and financial evaluation.

The project goals and objectives were used as the initial screen to assess the relative effectiveness of the strategies. The concepts were also presented and discussed at the November public meeting to gauge public interest and support for the strategies.

The list of potential strategies ranged from changes in zoning regulations to expanding local transit service. The consultants worked with the representatives of the local municipalities to determine which strategies and tools were already in use somewhere in the corridor. This information is summarized in **Table 1, Matrix of Potential Strategies.** The matrix also indicates which of the project goals(s) presented in Section 1 the strategy addresses.

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Table 1: Matrix of Potential Strategies

Potential Tools	GOALS MET	Identified Within: Pawling			Pawling Village		Dover			Amenia			North East			Millerton Village		
		Zoning	Master Plan	Subdivision Regulations	Zoning	Comprehenstve Plan	Zoning	Master Plan	Subdivision Regulations	Zoning	Master Plan	Subdivision Regulations	Zoning	Master Plan	Subdivision Regulations	Zoning	Master Plan	Subdivision Regulations
Growth in Defined Areas	1,2,4		X			X		X			X							
Define priority growth area													X			X		
Mixed-use zoning		X			X	X	X	X						X		X	X	
Density bonus/encouragement			X				X	X					X			X		
Infrastructure provision			X			X	X	X			X		X	X			X	
Open Space Preservation	1,2,4	X	O			X					X			X			X	
Designate greenbelts		X						X										
Cluster bylaw zoning			X			X	X	X			X		X			X		
Overlay district zoning							X							O			X	
Right to farm legislation								X			X			X			X	
Farmland tax relief (requires enabling legislation)								X						X			X	
Fee-simple acquisition																		
Purchase development rights														O			O	
Lease development rights														O			O	
Transfer development rights			O								X			X			X	
Land acquisition through Land Trust						X								X			X	
Agricultural use zoning																		
Transportation Systems Management																		
Cross-section guidelines	2,3,4,5				X	X					X			X			X	
Rural																		
Highway commercial																		
Village/hamlet							X											
Future connections/grid system				X		X						X						X
Capacity improvements	4,5,7						X											
Management Tools																		
Design guidelines																		
Site plan review	2,3,4,5				X			X					X					
Subdivision regulations	2,3,4,5			X				X	X			X			X			X
Harlem Valley Transportation Plan	4,7		X				X	X	X							X		X
Transportation Development District (TDD)	4,5,6	X												X				
Developer paid professional services	4,5,7	X				X	X			X								
Regional impact assessment	2,4,5,6,7	X					X			X								
Performance evaluation	4,7		O		X	X	X	X	X							X		X
Access Management	4,5,7																	
Medians (included in cross-sections)																		
Turn restrictions/lanes (included in capacity improvements)																		
Shared driveways			X	X				X	X									X
Parking lot connections/shared parking		X			X	X	X	X					X					X
Rear/side parking						X	X	X	X							X		
Corner sight distance					X		X	X							X			X
Landscape commercial space		X						X			X				X			
Increase driveway setback from intersection		X									X		X			X		
Driveway spacing/setback					X					X		X	X		X	X		X
Defined/limited number of driveways								X		X	X		X			X		X

O = Presented in document but not part of final recommendations.

Table 1: Matrix of Potential Strategies

Potential Tools	GOALS MET	Identified Within: Pawling – Zoning	Pawling – Master Plan	Pawling – Subdivision Regulations	Pawling Village – Zoning	Pawling Village – Comprehensive Plan	Dover – Zoning	Dover – Master Plan	Dover – Subdivision Regulations	Amenia – Zoning	Amenia – Master Plan	Amenia – Subdivision Regulations	North East – Zoning	North East – Master Plan	North East – Subdivision Regulations	Millerton Village – Zoning	Millerton Village – Master Plan	Millerton Village – Subdivision Regulations
Secondary access (feeder) roads (included in Harlem Valley Transportation Plan)		X	X	X		X			X				X					X
Climbing lanes																		
Local access permit program	4,6,7	X					X			X								
Signage Guidelines/Way-finding	11																	
Design guidelines		X						X						X		X	X	
Village/hamlet						X												
Gateways						X												
Harlem Valley Signage Plan																		
Identity																		
Way-finding/tourism																		
NYSDOT cooperation																		
Pedestrian/Bicycle Safety/Mobility	3,8,10	X		X				X										
Focus on growth areas/schools/transit						X		X	X						X			X
Village traffic calming																		
Safety	3,5,8							X						X			X	
Roadway/intersection improvements (included in Harlem Valley Transportation Plan)																		
Education programs																		
Signs—events/safety																		
School safety program																		
Aesthetics	2																	
Maintenance programs																		
Scenic byway/roads program			O			X		X										
Scenic overlooks																		
Public Transportation	9																	
North-south LOOP service																		
Subsidized taxi service											X							
Dial-a-ride bus service								X			X							
Convenience/tourist retail																		
Travel Demand Management	4																	
Park-&-ride lots																		
Carpool matches								X										
Commuter shuttles								X										
Flexible hours																		

O = Presented in document but not part of final recommendations.

The following municipal documents were used in preparing **Table 1.** The relevant adoption dates are indicated.

Town of Pawling

Zoning - 1978

Master Plan - 1990

Subdivision Regulations - 1988

Village of Pawling

Zoning -1995

Comprehensive Plan - 1994

Subdivision Regulations - Unknown

Town of Dover

Zoning - 1999

Master Plan - 1993

Subdivision Regulations - 1986

Town of Amenia

Zoning - 1986

Master Plan - 1991

Subdivision Regulations - 1999

Town of North East

Zoning - 1977

Master Plan - 1999

Subdivision Regulations - 1973

Village of Millerton

Zoning - 1977

Master Plan - 1999

Subdivision Regulations - 1987

It is important to note that many of the communities in the corridor implement some of the tools through the Planning Board and Zoning Board of Appeals processes or through other local laws or review processes (see **Appendix C**). One of the main recommendations of the Corridor Management Plan is that the use of these tools be

formalized in appropriate Town documents to provide consistency among developments over time as board members change.

PRELIMINARY SCREENING

The initial screening of the potential strategies included an assessment of the project objectives, probable cost, technical requirements, and potential environmental impacts. A general description of each of these factors is outlined below.

- **Project Objectives**
  This category provides a general description of the potential strategy and the objectives that it is attempting to achieve.

- **Probable Cost**
  Planning level estimates of probable cost were developed within three general categories: Low, <$100,000; Moderate, $100,000-499,000; High, >$500,000.

- **Estimated Technical Requirements**
  This category addresses the technical requirements of proposed alternatives. For example, is the alternative a fairly simple traffic signal installation that has been designed and installed on a fairly regular basis throughout the region? Or does the alternative require new technology that has not been used in the region and that would require outside expertise and a learning curve for the local agencies involved?

- **Potential Environmental Impacts**
  This category identifies areas of potential environmental concern such as Traffic, Safety, Social, Land Use, and Environmental (air quality, noise, wildlife).

After the initial screening was completed, all actions that did not address any of the project goals, objectives, or needs were eliminated. Actions that were determined to

have excessive cost or minimal benefit, as well as strategies with extremely difficult technical requirements or major negative impacts, were also eliminated. Finally, those actions that received negative comments or little interest from the participants at the public meetings were also eliminated.

The remaining strategies were then grouped into seven general categories to be progressed into the second stage of the evaluation, which is described in **Section 3.** Detailed descriptions of the strategies that were progressed to the next step are provided in **Appendix A.** Documentation of the eliminated actions and the reasons for elimination is provided in **Appendix B.**

SUMMARY OF PROGRESSED STRATEGIES

The remaining strategies were grouped into seven general categories to assist with the next phase of the evaluation:

1.0 Growth in Defined Areas
2.0 Open Space Preservation
3.0 Harlem Valley Transportation Plan
4.0 Design Guidelines
5.0 Access Management
6.0 Signage
7.0 Pedestrian/Bicycle Safety and Mobility

A summary of each of the strategies that was progressed is provided below.

1.0 Growth In Defined Areas

1.1 Define Priority Growth Area. Designate a 0.5-mile radius priority growth area. A growth boundary is an officially adopted line on a map showing the outermost limit of "urban" development within the planning horizon.

1.1.1 Mixed-use Zoning. Modify zoning to provide a mixed-use category within growth areas to permit both commercial and residential (including multi-family) uses.

1.1.2 Density Bonus. Provide a density bonus provision in the zoning code to encourage development within the defined growth areas.

1.1.3 Infrastructure Provision. Provide the necessary infrastructure (sewer and water) in growth areas to support higher density levels: Adequate infrastructure is needed within growth areas to support a higher level of development.

2.0 Open Space Preservation

2.1 Designate Greenbelts. Greenbelts are an officially designated area for the preservation of open space around priority growth areas. The preservation of open space in these areas is accomplished through land acquisition and zoning modifications.

2.1.1 Cluster Bylaw/Overlay District. Modify zoning to provide an Open Space Preservation Overlay Zone, which requires cluster development.

2.1.2 Lease Development Rights. Municipalities lease development rights from farmers in exchange for a reduction in property tax assessment during a long-term lease period (20 years or more).

2.1.3 Transfer Development Rights. Municipalities work with developers and land owners to transfer development rights from designated greenbelts to designated growth areas.

2.1.4 Land Acquisition through Existing Land Trusts. Municipalities should proceed with local land acquisition through existing land trusts, including the Dutchess Land Conservancy and the Nature Conservancy.

3.0 Harlem Valley Transportation Plan

The Harlem Valley Transportation Plan is a document that could be adopted by the local legislation in the participating communities. This plan depicts the rights-of-way for proposed roads and modification to existing roads.

3.1 Cross-section Guidelines. As Route 22 improvement projects are designed and constructed, different roadway cross-section guidelines should be followed, depending on the adjacent land use and the character of the area. The cross-section guidelines were developed to adequately accommodate the anticipated modes of transportation—vehicular, bicycle, and pedestrian—in different sections of the corridor. Three general categories have been identified for the Route 22 Corridor: Rural, Highway Commercial, and Village/Hamlet, with two sub-categories, divided and undivided, under Highway Commercial.

3.1.1 Rural. The rural cross section should consist of travel lanes that are wide enough to accommodate the future traffic volumes expected for Route 22 and be in compliance with NYSDOT standards. The shoulders should also be wide enough to accommodate slow-moving vehicles, broken-down vehicles, and room to go around vehicles making left turns.

3.1.2 Highway Commercial.

3.1.2.1 Divided. The divided highway commercial cross section is a curbed cross section that limits the driveway access onto Route 22 and the divided median limits left turn movements to designated intersections. This section provides adequate travel lane width for future traffic volumes and also provides room for a shoulder or bicycle lane and includes sidewalks where pedestrian activity warrants.

3.1.2.2 Undivided. The undivided highway commercial cross section is similar to the divided cross section in

that it limits the driveway access onto Route 22 with curbing, provides adequate travel lane width for future traffic volumes, provides room for a shoulder or bicycle lane, and includes sidewalks for pedestrians. Left turn lanes should be provided at intersections where warranted.

3.1.3 Village/Hamlet. The village/hamlet cross section is the same as the undivided cross section except for providing additional space between the travel lane and the curb to allow for vehicles making stops to drop off or pick up passengers and/or packages. This space should also allow adequate room for pedestrians and bicyclists. Parking can be provided adjacent to the travel lane for streets off of Route 22.

3.2 Roadway Connections.

3.2.1 Provide Secondary Access Roads. Secondary access/service or feeder roads, typically located parallel to and alongside the through route, remove turning traffic from the through route (Route 22) while maintaining access to businesses.

3.2.2 Encourage grid system. An effort should be made to encourage a grid pattern of short, straight streets that provide alternative travel patterns.

3.3 Capacity Improvements. Capacity improvements can be as simple as modifying the signal timing or phasing at a signalized intersection, or they can be as involved as adding turn lanes or additional through lanes. Capacity improvements facilitate better traffic flow and can increase safety.

3.4 Safety Improvements. Safety improvements often involve improving sight distance deficiencies or making it safer to turn onto or off of Route 22. The lack of adequate sight distance at several intersections along Route 22 due to existing trees, brush or rock outcroppings for

example, make it difficult to see when it is safe to turn onto Route 22 from a side road or driveway.

4.0 Design Guidelines

Design guidelines recognize that current development trends do not necessarily give people what they want. Guidelines regulate development for consistency with the vision of the community.[1]

Design guidelines typically cover the layout and design of streets and the relationships of buildings, driveways, landscaping, and parking areas to streets. These guidelines can be used in conjunction with architectural standards and signage guidelines. Guidelines provide consistency from development to development and over time as membership in a planning board changes. Separate guidelines should be developed to address the varying needs of highway commercial areas, residential subdivisions, and mixed-use villages and hamlets.

5.0 Access Management

5.1 Incorporate Access Management Tools into Site Plan Review and Sub-division Regulations. Access Management is a tool that addresses the conflict between through traffic and traffic destined to developments abutting a roadway.

5.1.1 Shared Driveways. Shared driveways serve two or more abutting properties to reduce the total number of driveways, provide greater driveway spacing and improve the management of entering and exiting traffic.

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[1] Dutchess County Department of Planning and Development. *Hamlet Design Guidelines.* Albany, New York: New York Planning Federation, October 1994.

5.1.2 Shared Parking/Parking Lot Connections. Internal parking lot connections allow vehicles to move from one development to another without having to enter the main roadway.

5.1.3 Rear/Side Parking. Parking provided to the side and rear of buildings provides significant transportation and visual benefits.

5.1.4 Corner Sight Distance. Adequate sight distance should be provided on all intersection approaches, to reduce the potential for accidents.

5.1.5 Increase Driveway Setback from Intersection. To reduce conflict points at major intersections, driveway setbacks should be increased to between 200 to 250 feet for full access of all movements.

5.2 Define/Limit Number of Driveways through a Limited Access Overlay District. The intent of this tool is to maintain less than 10 uncontrolled access points per side per mile in rural sections between growth areas or a driveway spacing of approximately 550 feet.

6.0 Signage

6.1 Signage Design Guidelines. Signage guidelines are enacted to improve the visual appearance of communities. The type, size, and location of a sign can be determined by a zoning ordinance, but the material, colors, and design are generally controlled by guidelines. This strategy would provide guidelines for specific parts of the community such as villages and hamlets versus highway commercial districts.

6.2 Harlem Valley Signage Plan. This tool would establish guidelines for Route 22 in the Harlem Valley that are more structured and consistent with the character of the region. The Harlem Valley guidelines would specify construction materials, design, color combinations, and text for authorized signs. This strategy differs from the guidelines

presented above in that it is specific to Route 22 and would be developed to comply with NYSDOT regulations.

7.0 Pedestrian/Bicycle Safety and Mobility

7.1 Sidewalks in Growth Areas. Sidewalks are an important factor in enhancing safety and encouraging walking as a primary mode of transportation and should be provided on all streets within the priority growth areas. The provision of appropriate pedestrian facilities (e.g., sidewalks and crosswalks) should also be encouraged in other areas along the corridor where there is existing pedestrian activity or where those types of facilities have the potential of reducing auto trips.

7.2 Village Traffic Calming. Traffic calming is a combination of physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users. Traffic calming is used to reduce vehicle speed, mitigate cut-through traffic, increase safety and improve aesthetics.

7.3 Pedestrian/Bicycle Connections in Key Locations. Pedestrian and bicycle facilities offer an alternative for those who are unable or choose not to a drive a vehicle, while reducing traffic volumes and associated congestion. The most significant pedestrian/bicycle facility in the region is the Harlem Valley Rail Trail (HVRT). Efforts to connect the HVRT to adjacent population centers (e.g., the hamlet of Wassaic) should be pursued where possible. The following locations, although not inclusive of all areas of concern, were the focus of this study.

7.3.1 Dover Plains to Tally Ho Mobile Home Park, Dover.

7.3.2 Amenia hamlet north to Maplebrook School, Amenia.

7.3.3 Route 22 at CR 67 (Quaker Hill Road) to Pawling Metro-North RR Station via Main Street, Pawling (bicycle only).

7.3.4 CR 4 (Poplar Hill Road) to Tenmile River Metro-North RR Station via CR 5 (Sinpatch Road), Amenia (bicycle only).

7.3.5 Route 343 to HVRT along Mechanic Street, Amenia (bicycle only).

SECTION 3: EVALUATION OF PROGRESSED STRATEGIES

The previous section of this report described the process used to screen the initial list of strategies and actions that were developed during the project. This section describes the second stage of the evaluation process, which was completed for more than fifty separate actions that were progressed to this stage.

The second phase of the evaluation included an assessment of twenty-nine factors in five general categories of concern: traffic/safety/multimodal, social/land use, environmental, infrastructure, and cost/construction. These general categories are described below.

- **Traffic/Safety/Multimodal** — The assessment of traffic issues includes an evaluation of access and the effect on overall traffic operations, particularly capacity and associated congestion. Safety factors consider whether a proposed strategy will reduce the opportunity for accidents or create additional conflict points. The multimodal evaluation considers the effect the strategy has on public transportation, pedestrians, and bicyclists. For example, a proposed center-raised median would reduce the number of conflict points for vehicles entering and exiting Route 22 and would, therefore, reduce congestion and the number of potential accidents. A center median would also require widening of the roadway, thus lengthening the distance that pedestrians have to cross. However, the additional crossing distance would be offset by the fact that the median offers a safe place for pedestrians to rest and wait for a gap in traffic.

- **Social/Land Use** — The assessment of social factors includes identification of potential land takings, changes in neighborhoods, community acceptability, and potential impacts to the character of the area. Land use factors include effects on land use and zoning and development potential. The center-raised median example would potentially result in additional land taking. It would also impact the development potential of adjacent parcels, which would have limited access from Route 22 due to the presence of a raised median.

- **Environmental** — The assessment of environmental factors includes the effect on open space and the visual character of the area. It also identifies potential effects on air and water quality, noise, wetlands, and wildlife. In the center-raised median example, the roadway widening could have a slight negative impact on open space and wetlands, depending on the proposed location. It also could have a significant visual impact, since its urban characteristics are out of context in a rural environment. As indicated previously, a center-raised median is expected to reduce vehicle congestion and, as a result, will also reduce potential impacts to air and noise quality.

- **Infrastructure** — The assessment of infrastructure factors takes into account maintenance and operational issues and cost. It also considers the strategy's effect on drainage, utilities, and other public infrastructure such as roads or bridges. Regarding the center-raised median example, the greatest impact would be on drainage. Drainage issues would be addressed in the design and would be an initial one-time cost. There would also be on-going maintenance costs for landscaping and snow removal at pedestrian crosswalks through the median.

- **Cost/Construction** — The assessment of construction factors includes acquisition of additional right-of-way, technical requirements for construction (constructability), construction impacts such as detours or road closures, and construction cost. A separate cost factor considered in the evaluation process is the cost of consultants. The center-raised median, for example, could potentially

require additional right-of-way to widen the road. It would also require closure of a lane during construction. Consultant costs would be incurred for the design, with a separate cost rating for construction. The costs considered were those that would potentially be incurred by the municipalities. Some of the improvements would take place as part of a state highway project in which the municipality may only contribute a local share to the funds.

Table 2 summarizes the second stage of the evaluation process. As strategies were progressed, some were combined for evaluation purposes, as shown in the table. The grouping does not indicate that they will be progressed as recommendations in the same format.

For each evaluation factor, the strategy was assigned a rating from –3 to 2 that indicates the potential impact of implementation. The rankings are generalized; actual impacts of specific projects could be different:

(2) Benefit

(1) Some Benefit

(0) No Impact

(-1) Slight Adverse Impact

(-2) Moderate Adverse Impact

(-3) High Adverse Impact

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Table 2: Strategy Evaluation Matrix

Strategies to Be Progressed			Evaluation Factors																												
				Traffic/Safety/Multimodal						Social/Land Use									Environmental							Infrastructure			Cost/Construction				
		SUMMARY		Congestion	Local Access	Safety	Transit	Pedestrian Mobility/ Accessibility	Bicycling Space	Development Potential	Land Use Compatibility	Farmland	Relocation	Village/Hamlet	Community Acceptability	Economic	Historic/ Architectural/ Cultural	Green Space/ Open Space	Air Quality	Noise	Wetlands/ Floodplains	Visual	Water Quality	Wild Life	Maintenance	Drainage	Utilities & Infrastructure	Right-of-Way	Constructability	Construction Impacts	Construction Costs ($ million)	Consultant Cost
1.0 Growth in Defined Areas																															
1.1	Define Priority Growth Area	12		2	0	0	1	2	0	-2	0	2	0	2	2	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	-1
1.1.1	Mixed-use zoning	13		2	0	1	1	2	0	2	0	0	0	2	1	1	1	0	0	0	0	1	0	0	0	0	-1	0	0	0	0	-1
1.1.2	Density bonus	2		-1	0	0	1	1	0	1	0	0	0	1	1	2	0	0	-1	-1	0	0	0	0	0	0	-2	0	0	0	0	-1
1.1.3	Infrastructure provision	3		0	0	0	0	0	0	2	0	0	0	1	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-3	-1
2.0 Open Space Preservation																															
2.1	Designate Greenbelts																														
2.1.1	Cluster by-law/Overlay district	7		1	-1	1	1	0	0	0	0	1	0	0	1	-1	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
2.1.2	Lease development rights	10		1	0	1	0	0	0	-1	1	2	0	0	1	-1	0	1	1	1	0	2	0	1	0	0	0	0	0	-2	-1
2.1.3	Transfer development rights	13		1	0	1	0	0	0	0	1	2	0	1	1	0	0	1	1	1	0	2	0	1	0	0	0	0	0	0	-1
2.1.4	Land acquisition through existing land trusts	13		1	0	1	0	0	0	0	1	2	-1	0	0	-1	0	2	2	2	0	2	0	2	0	0	0	0	0	-3	0
3.0 Harlem Valley Transportation Plan																															
3.1	Cross-section guidelines																														
3.1.1	Rural	10		2	2	2	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	-1	-1	-1
3.1.2	Highway commercial																														
	3.1.2.1 Divided	9		2	2	2	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	-1	-1	-1	-1	-1
	3.1.2.2 Undivided	9		2	2	2	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	-1	-1	-1	-1	-1
3.1.3	Village/hamlet	8		2	2	2	1	2	2	0	0	0	0	1	0	0	-1	0	0	0	0	0	0	0	1	1	1	-2	-1	-1	-1	-1
3.2	Roadway connections																														
3.2.1	Provide secondary access roads	3		2	2	0	0	1	0	1	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	-2	0	-1	0	0	0	0	0
3.2.2	Encourage grid system	3		2	2	0	0	1	0	1	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	-2	0	-1	0	0	0	0	0
3.3	Capacity Improvements																														
	Short-term Capacity Improvements																														
3.3.1	Aikendale Road, Pawling	6		2	0	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	-1
3.3.2	Coulter Avenue/Pine Street, Pawling	7		2	0	2	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	-1
3.3.3	Mill Street, Dover	5		1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	-1
	Long-term Capacity Improvements																														
3.3.4	CR 67 (Quaker Hill Road)/East Main Street, Pawling	-1		2	0	2	1	1	1	0	0	0	0	0	0	0	-2	-1	1	1	0	-1	0	0	0	0	0	-2	-1	-1	-1	-1
3.3.5	CR 21 (Pleasant Ridge Road), Dover	3		1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1	-1
3.3.6	Mill Street, Dover	4		2	0	2	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	-1	-1	-1	-1	-1
3.3.7	Route 44/Route 343, Amenia	3		2	0	2	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	-2	-1	-1	-1	-1
3.3.8	Route 44 (Main Street), Millerton	0		2	0	2	0	2	1	0	0	0	-2	0	0	0	0	0	1	1	0	0	0	0	0	0	0	-3	-1	-1	-1	-1
3.4	Safety Improvements																														
	Intersections with Route 22																														
3.4.1	Aikendale Road, Pawling	3		1	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1	-1
3.4.2	CR 67 (Quaker Hill Road)/East Main Street, Pawling	-2		1	1	2	0	1	1	0	0	0	-2	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	-2	-1	0	-1	-1
3.4.3	Coulter Avenue/Pine Street, Pawling	1		1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1	-1
3.4.4	Kitchen Road, Dover	-2		-1	0	2	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1
3.4.5	CR 26 (Cricket Hill Road), Dover	0		0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1
3.4.6	Sherman Hill Road, Dover	-7		0	0	2	0	0	0	0	-1	0	0	0	0	0	0	-2	0	0	0	-1	0	0	1	0	0	-2	-1	-1	-1	-1
3.4.7	Dover High School, Dover	3		1	0	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	-1	-1
3.4.8	Dover Furnace Road, Dover	-7		0	0	2	0	0	0	0	-1	0	0	0	0	0	0	-2	0	0	0	-1	0	0	1	0	0	-2	-1	-1	-1	-1
3.4.9	Oniontown Road, Dover	4		0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
3.4.10	CR 105 (Sinpatch Road), Amenia	0		0	0	2	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	-1	-1
3.4.11	CR 81 (Old Route 22), Amenia	-3		0	0	2	0	1	1	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	-2	-1	-1	-1	-1
3.4.12	Haight Road, North East	3		1	0	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	-1	-1
3.4.13	Downey Road, North East	-1		0	0	2	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1
3.4.14	Route 199, North East	2		1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	-1	-1	-1

RATING: Benefit (2); Some Benefit (1); No Impact (0); Slight Adverse Impact (-1); Moderate Adverse Impact (-2); High Adverse Impact (-3)
COST: Low, <$100,000 (-1); Moderate, $100,000-$499,000 (-2); High, >$500,000 (-3)

Strategies to Be Progressed		SUMMARY	Evaluation Factors: Traffic/Safety/Multimodal: Congestion	Local Access	Safety	Transit	Pedestrian Mobility/ Accessibility	Bicycling Space	Social/Land Use: Development Potential	Land Use Compatibility	Farmland	Relocation	Village/Hamlet	Community Acceptability	Economic	Historic/ Architectural/ Cultural	Environmental: Green Space/ Open Space	Air Quality	Noise	Wetlands/ Floodplains	Visual	Water Quality	Wild Life	Infrastructure: Maintenance	Drainage	Utilities & Infrastructure	Cost/Construction: Right-of-Way	Constructability	Construction Impacts	Construction Costs ($ million)	Consultant Cost
3.4.15	Route 44/Route 22, Millerton	8	2	0	2	0	2	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	-1
Highway Segments along Route 22																															
3.4.16	Dover High School to East Duncan Hill Road, Dover	0	2	1	2	1	1	1	0	0	0	0	0	0	0	0	-1	0	0	0	-1	0	0	0	0	0	-2	-1	-1	-1	-1
3.4.17	Crossing Swamp River, Dover	0	2	1	2	1	1	1	0	0	0	0	0	0	0	0	-1	0	0	0	-1	0	0	0	0	0	-2	-1	-1	-1	-1
3.4.18	Grand Union to McDonald's, Dover	3	2	2	2	1	1	1	0	-1	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	-1	-1	-1
4.0 Design Guidelines		11	0	-1	1	1	2	2	-1	1	0	0	2	2	-1	2	1	0	0	0	2	0	0	-1	0	0	0	0	0	0	-1
5.0 Access Management																															
5.1	Incorporate access management tools into site plan review and sub-division regulations	8	0	0	0	0	0	0	0	0	1	1	1	2	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
5.1.1	Shared driveways	4	2	-1	2	0	0	0	-1	0	0	0	0	1	-1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5.1.2	Shared parking/ connections	6	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.1.3	Rear/side parking	4	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
5.1.4	Corner sight distance	2	0	0	2	0	0	0	-1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	-1	0	0	0	0	0	0	0
5.1.5	Increase driveway setback from intersection	2	1	-1	2	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5.2	Define/limit number of driveways through a Limited Access Overlay District	7	2	-1	2	0	1	1	-1	0	0	0	0	2	-1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	-1
6.0 Signage																															
6.1	Signage design guidelines	4	0	0	1	0	0	0	0	0	0	0	0	2	-1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	-1
6.2	Harlem Valley Signage Plan	3	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1
7.0 Pedestrian/Bicycle Safety & Mobility																															
7.1	Sidewalks in growth areas -- 0.5-mile radius	7	1	0	2	0	2	0	0	0	0	0	2	2	-1	0	0	0	0	0	1	0	0	-2	0	0	0	0	-1	0	0
7.2	Village Traffic Calming	2	0	-1	1	0	1	-1	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	-1	-2	0
7.3	Pedestrian/Bicycle connections in key locations																														
7.3.1	Dover Plains to Tally Ho Mobile Home Park, Dover	4	0	0	1	0	1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	-1	0
7.3.2	Amenia hamlet north to Maplebrook School, Amenia	4	0	0	1	0	1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	-1	0
7.3.3	Route 22 at CR 67 (Quaker Hill Rd.) to Pawling Metro-North RR Station via Main St., Pawling (bicycle only)	5	0	0	1	1	1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	-1	0
7.3.4	CR 4 (Poplar Hill Rd.) to Tenmile River Metro-North RR Station via CR 5 (Sinpatch Rd.), Amenia (bicycle only)	5	0	0	1	1	1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	-1	0
7.3.5	Route 343 to HVRT along Mechanic Street, North East (bicycle only)	5	0	0	1	0	1	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	-1	0

RATING: Benefit (2); Some Benefit (1); No Impact (0); Slight Adverse Impact (-1); Moderate Adverse Impact (-2); High Adverse Impact (-3)
COST: Low, <$100,000 (-1); Moderate, $100,000-$499,000 (-2); High, >$500,000 (-3)

The probable costs are based on planning level estimates and are ranked from –3 to –1 as follows:

(-1) Low, less than $100,000

(-2) Moderate, $101,000 to $499,000

(-3) High, greater than $500,000

The final section of the report, Plan Recommendations, summarizes the final recommendations of the Route 22 Corridor Management Plan.

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SECTION 4: PLAN RECOMMENDATIONS

Using the evaluation factors discussed in the previous section, those strategies that had an adverse impact (negative value) and those that had no net benefit (zero value) were dropped from further consideration. The remaining tools and actions represent the principal recommendations for the Corridor Management Plan.

This final section of the report presents the recommended strategies in three ways. first, they are arranged by expected time frame (short-term, intermediate, and long-term), and then by municipality. In addition, a map shows the location of the physical improvements (e.g., cross-sections, safety recommendations). Additional details about these strategies are presented in **Appendix A.**

TIME FRAME

Once the list of recommended strategies had been finalized, the strategies were sorted by the expected implementation time frame, using the following guidelines:

- Short-term
  - High benefit value
  - Low cost
  - Immediate need
- Intermediate
  - Moderate value
  - Moderate cost
  - Mid- to long-term need

- Long-term
    - Lower value
    - High cost
    - Long-term need

In general, the summary score shown in the Strategy Evaluation Matrix was used to determine the relative value of each strategy. For example, in Category 1.0, Growth in Defined Areas, mixed-use zoning had a higher benefit value (13) than the provision of infrastructure (3). Both strategies are part of the final recommendations, but provision of infrastructure is listed as a long-term recommendation.

SHORT-TERM RECOMMENDATIONS

The following short-term recommendations generally apply to existing conditions and deficiencies. A number of these actions are easily implemented and have low associated costs. These recommendations should be pursued through 2005.

1.0 Growth in Defined Areas
- 1.1 Define priority growth area
    - 1.1.1 Mixed-use zoning

2.0 Open Space Preservation
- 2.1 Designate Greenbelts
    - 2.1.2 Lease development rights
    - 2.1.3 Transfer development rights
    - 2.1.4 Land acquisition through existing land trusts

3.0 Harlem Valley Transportation Plan
- 3.1 Cross-section guidelines
    - 3.1.1 Rural
    - 3.1.2 Highway commercial
    - 3.1.3 Village/hamlet

INTERMEDIATE RECOMMENDATIONS

The intermediate recommendations are intended to address the transportation and land use issues through 2010. In some cases, implementation could happen earlier as appropriate opportunities arise.

2.0 Open Space Preservation
- 2.1 Designate Greenbelts
  - 2.1.1 Cluster by-law/overlay district

3.0 Harlem Valley Transportation Plan
- 3.3 Capacity Improvements
  - 3.3.1 Aikendale Road, Pawling
  - 3.3.2 Coulter Avenue/Pine Street, Pawling
  - 3.3.3 Mill Street, Dover
  - 3.3.5 CR 21 (Pleasant Ridge Road), Dover
  - 3.3.6 Mill Street, Dover
- 3.4 Safety Improvements

  Intersections with Route 22
  - 3.4.1 Aikendale Road, Pawling

4.0 Design Guidelines

5.0 Access Management
- 5.1 Incorporate access management tools into site plan review and subdivision regulations
  - 5.1.1 Shared driveways
  - 5.1.2 Shared parking/parking lot connections
  - 5.1.3 Rear/side parking
  - 5.1.4 Corner sight distance
  - 5.1.5 Increase driveway setback from intersection
- 5.2 Define/limit number of driveways through a Limited Access Overlay District

6.0 Signage
- 6.1 Signage design guidelines
- 6.2 Harlem Valley Signage Plan

7.0 Pedestrian/Bicycle Safety & Mobility
- 7.1 Sidewalks in growth areas—0.5-mile radius
- 7.2 Village traffic calming

LONG-TERM RECOMMENDATIONS

The following long-term recommendations will assist the communities and NYSDOT in their efforts to preserve capacity and address anticipated capacity and safety needs through 2020. Again, implementation of some projects could occur sooner.

1.0 Growth in Defined Areas
- 1.1 Define priority growth area
  - 1.1.2 Density bonus
  - 1.1.3 Infrastructure provision

3.0 Harlem Valley Transportation Plan
- 3.2 Roadway connections
  - 3.2.1 Provide secondary access roads
  - 3.2.2 Encourage grid system
- 3.3 Capacity Improvements
  - 3.3.7 Route 44/Route 343, Amenia
- 3.4 Safety Improvements

  Intersections with Route 22
  - 3.4.3 Coulter Avenue/Pine Street, Pawling
  - 3.4.7 Dover High School, Dover
  - 3.4.9 Oniontown Road, Dover
  - 3.4.12 Haight Road, North East
  - 3.4.14 Route 199, North East
  - 3.4.15 Route 44/Route 22, Millerton

Highway segments along Route 22

3.4.18 Grand Union to McDonald's, Dover

7.0 Pedestrian/Bicycle Safety & Mobility

7.3 Pedestrian/bicycle connections in key locations

7.3.1 Dover Plains to Tally Ho Mobile Home Park, Dover

7.3.2 Amenia hamlet north to Maplebrook School, Amenia

7.3.3 Route 22 at CR 67 (Quaker Hill Road) to Pawling Metro-North RR Station via Main Street, Pawling

7.3.4 CR 4 (Poplar Hill Road) to Tenmile River Metro-North RR Station via CR 5 (Sinpatch Road), Amenia

7.3.5 Route 343 to Harlem Valley Rail Trail along Mechanic Street, Amenia

The physical recommendations are documented in **Figure 1, Harlem Valley Transportation Plan**. The map shows the location of proposed cross-sections (rural, village, commercial divided, commercial undivided), capacity improvements, safety improvements, and pedestrian/bicycle improvements. This plan can become the basis of ongoing coordination between the municipalities and NYSDOT for Route 22 improvements.

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MUNICIPAL STRATEGIES

The Route 22 Corridor Management Plan project is a cooperative effort among the six Harlem Valley municipalities. The six share some characteristics, but each also has its own particular issues and concerns. This portion of the plan outlines the strategies that are recommended for each town and village. Many of the recommendations appear in more than one community (e.g., define priority growth areas), but some are specific to a particular town or village (e.g., safety improvements). **Appendix A** includes a detailed explanation for each strategy and describes the locations for the physical improvements (e.g., safety and capacity).

PAWLING

Short-term

1.0 Growth in Defined Areas
- 1.1 Define priority growth area (Pawling Village)

2.0 Open Space Preservation
- 2.1 Designate Greenbelts
  - 2.1.3 Transfer development rights
  - 2.1.4 Land acquisition through existing land trusts

3.0 Harlem Valley Transportation Plan
- 3.1 Cross-section guidelines
  - 3.1.1 Rural
  - 3.1.2 Highway commercial

Intermediate

2.0 Open Space Preservation
- 2.1 Designate Greenbelts
  - 2.1.1 Cluster by-law/overlay district (in Master Plan; needs to be incorporated into zoning)

3.0 Harlem Valley Transportation Plan

3.3 Capacity improvements

3.3.1 Aikendale Road

3.3.2 Coulter Avenue/Pine Street

3.4 Safety improvements

Intersections with Route 22

3.4.1 Aikendale Road

4.0 Design Guidelines

5.0 Access Management

5.1 Incorporate access management tools into site plan review and subdivision regulations

5.1.3. Rear/side parking

5.1.4 Corner sight distance

5.1.5 Increase driveway setback from intersection

5.2 Define/limit number of driveways through a Limited Access Overlay District

6.0 Signage

6.1 Signage design guidelines

6.2 Harlem Valley Signage Plan

Long-term

1.0 Growth in Defined Areas

1.1 Define priority growth area

1.1.2 Density bonus (in Master Plan; needs to be incorporated in zoning)

3.0 Harlem Valley Transportation Plan

3.4 Safety improvements

Intersections with Route 22

3.4.3 Coulter Avenue/Pine Street

VILLAGE OF PAWLING

Short-term

1.0 Growth in Defined Areas
- 1.1 Define priority growth area (Pawling Village)

2.0 Open Space Preservation
- 2.1 Designate Greenbelts
  - 2.1.3 Transfer development rights

3.0 Harlem Valley Transportation Plan
- 3.1 Cross-section guidelines
  - 3.1.3 Village/hamlet

Intermediate

4.0 Design Guidelines

5.0 Access Management
- 5.1 Incorporate access management tools into site plan review and subdivision regulations
  - 5.1.1 Shared driveways
  - 5.1.3. Rear/side parking
  - 5.1.5 Increase driveway setback from intersection
- 5.2 Define/limit number of driveways through a Limited Access Overlay District

6.0 Signage
- 6.1 Signage design guidelines
- 6.2 Harlem Valley Signage Plan

7.0 Pedestrian/Bicycle Safety & Mobility
- 7.1 Sidewalks in growth areas within 0.5-mile radius (in Transportation Plan; needs to be included in zoning)
- 7.2 Village traffic calming

Long-term

1.0 Growth in Defined Areas
- 1.1 Define priority growth area
  - 1.1.2 Density bonus (in Master Plan; needs to be incorporated in zoning)
  - 1.1.3 Infrastructure provision

3.0 Harlem Valley Transportation Plan
- 3.2 Roadway connections
  - 3.2.2 Encourage grid system

7.0 Pedestrian/Bicycle Safety & Mobility
- 7.3 Pedestrian/bicycle connections in key locations
  - 7.3.3 Route 22 at CR 67 (Quaker Hill Road) to Pawling Metro-North RR Station via Main Street

DOVER

Short-term

1.0 Growth in Defined Areas
- 1.1 Define priority growth areas (Wingdale and Dover Plains)

2.0 Open Space Preservation
- 2.1 Designate Greenbelts
  - 2.1.3 Transfer development rights
  - 2.1.4 Land acquisition through existing land trusts

3.0 Harlem Valley Transportation Plan
- 3.1 Cross-section guidelines
  - 3.1.1 Rural
  - 3.1.2 Highway commercial
  - 3.1.3 Village/hamlet

Intermediate

3.0 Harlem Valley Transportation Plan
- 3.3 Capacity Improvements
  - 3.3.3 Mill Street
  - 3.3.5 CR 21 (Pleasant Ridge Road)
  - 3.3.6 Mill Street

4.0 Design Guidelines

5.0 Access Management
- 5.1 Incorporate access management tools into site plan review and subdivision regulations
  - 5.1.1 Shared driveways (in Master Plan; needs to be incorporated into zoning)
  - 5.1.5 Increase driveway setback from intersection
- 5.2 Define/limit number of driveways through a Limited Access Overlay District

6.0 Signage
- 6.1 Signage design guidelines
- 6.2 Harlem Valley Signage Plan

7.0 Pedestrian/Bicycle Safety & Mobility
- 7.1 Sidewalks in growth areas within 0.5-mile radius
- 7.2 Village traffic calming

Long-term

1.0 Growth in Defined Areas
- 1.1 Define priority growth area
  - 1.1.3 Infrastructure provision

3.0 Harlem Valley Transportation Plan
- 3.2 Roadway connections
  - 3.2.1 Provide secondary access road

3.2.2 Encourage grid system

3.4 Safety improvements

Intersections with Route 22

3.4.7 Dover High School

3.4.9 Oniontown Road

Highway segments along Route 22

3.4.18 Grand Union to McDonald's

7.0 Pedestrian/Bicycle Safety & Mobility

7.3 Pedestrian/bicycle connections in key locations

7.3.1 Dover Plains to Tally Ho Mobile Home Park

AMENIA

Short-term

1.0 Growth in Defined Areas

1.1 Define priority growth areas (Former Wassaic Development Center and Amenia hamlet)

1.1.1 Mixed-use zoning

2.0 Open Space Preservation

2.1 Designate Greenbelts

2.1.2 Lease development rights

2.1.3 Transfer development rights (in Master Plan; needs to be incorporated into zoning)

2.1.4 Land acquisition through existing land trusts

3.0 Harlem Valley Transportation Plan

3.1 Cross-section guidelines

3.1.1 Rural

3.1.2 Highway commercial

3.1.3 Village/hamlet

Intermediate

2.0 Open Space Preservation
- 2.1 Designate Greenbelts
  - 2.1.1 Cluster by-law/overlay district (in Master Plan; needs to be incorporated into zoning)

4.0 Design Guidelines

5.0 Access Management
- 5.1 Incorporate access management tools into site plan review and subdivision regulations
  - 5.1.1 Shared driveways
  - 5.1.2 Shared parking/connections
  - 5.1.3 Rear/side parking
  - 5.1.4 Corner sight distance
  - 5.1.5 Increase driveway setback from intersection
- 5.2 Define/limit number of driveways through a Limited Access Overlay District (referred to in zoning; needs to specifically identify area and limit on driveways; i.e., 10 per side per mile)

6.0 Signage
- 6.1 Signage design guidelines
- 6.2 Harlem Valley Signage Plan

7.0 Pedestrian/Bicycle Safety & Mobility
- 7.1 Sidewalks in growth areas within 0.5-mile radius
- 7.2 Village traffic calming

Long-term

1.0 Growth in Defined Areas
- 1.1 Define priority growth area
  - 1.1.2 Density bonus
  - 1.1.3 Infrastructure provision

3.0 Harlem Valley Transportation Plan
- 3.2 Roadway connections
  - 3.2.1 Provide secondary access roads
- 3.3 Capacity improvements
  - 3.3.7 Route 44/Route 343

7.0 Pedestrian/Bicycle Safety & Mobility
- 7.3 Pedestrian/bicycle connections in key locations
  - 7.3.2 Amenia hamlet north to Maplebrook School
  - 7.3.4 CR 4 (Poplar Hill Road) to Tenmile River Metro North RR Station via CR 5 (Sinpatch Road)
  - 7.3.5 Route 343 to Harlem Valley Rail Trail along Mechanic Street

NORTH EAST

Short-term

1.0 Growth in Defined Areas
- 1.1 Define priority growth areas (Millerton Village)
  - 1.1.1 Mixed-use zoning (in Master Plan; needs to be incorporated into zoning)

2.0 Open Space Preservation
- 2.1 Designate Greenbelts
  - 2.1.2 Lease development rights
  - 2.1.3 Transfer development rights (in Master Plan; needs to be incorporated into zoning)
  - 2.1.4 Land acquisition through existing land trusts (in Master Plan; needs to be incorporated into zoning)

3.0 Harlem Valley Transportation Plan
- 3.1 Cross-section guidelines
  - 3.1.1 Rural

3.1.3 Village/hamlet

Intermediate

4.0 Design Guidelines

5.0 Access Management

5.1 Incorporate access management tools into site plan review and subdivision regulations

5.1.1 Shared driveways

5.1.3 Rear/side parking

5.1.4 Corner sight distance

5.1.5 Increase driveway setback from intersection

5.2 Define/limit number of driveways through a Limited Access Overlay District

6.0 Signage

6.1 Signage design guidelines

6.2 Harlem Valley Signage Plan

7.0 Pedestrian/Bicycle Safety & Mobility

7.1 Sidewalks in growth areas within 0.5-mile radius

7.2 Village traffic calming

Long-term

1.0 Growth in Defined Areas

1.1 Define priority growth areas

1.1.3 Infrastructure provision

3.0 Harlem Valley Transportation Plan

3.2 Roadway connections

3.2.2 Encourage grid system

3.4 Safety improvements

Intersections with Route 22

3.4.12 Haight Road

3.4.14 Route 199

VILLAGE OF MILLERTON

Short-term

1.0 Growth in Defined Areas

1.1 Define priority growth area (Millerton Village)

2.0 Open Space Preservation

2.1 Designate Greenbelts

2.1.3 Transfer development rights (in Master Plan; needs to be incorporated into zoning)

2.1.4 Land acquisition through existing land trusts (in Master Plan; needs to be incorporated into zoning)

3.0 Harlem Valley Transportation Plan

3.1 Cross-section guidelines

3.1.3 Village/hamlet

Intermediate

4.0 Design Guidelines

5.0 Access Management

5.1 Incorporate access management tools into site plan review and subdivision regulations

5.1.1 Shared driveways

5.1.2 Shared parking/connections

5.1.4 Corner sight distance

5.1.5 Increase driveway setback from intersection

5.2 Define/limit number of driveways through a Limited Access Overlay District

6.0 Signage

6.1 Signage design guidelines

6.2 Harlem Valley Signage Plan

7.0 Pedestrian/Bicycle Safety & Mobility

7.1 Sidewalks in growth areas within 0.5-mile radius

7.2 Village traffic calming

Long-term

1.0 Growth in Defined Areas

1.1 Define priority growth area

1.1.3 Infrastructure provision

3.0 Harlem Valley Transportation Plan

3.2 Roadway connections

3.2.2 Encourage grid system

3.4 Safety improvements

Intersections with Route 22

3.4.15 Route 44/Route 22

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SECTION 5: NEXT STEPS

The Corridor Management Plan is the Harlem Valley's blueprint for the Route 22 Corridor. This chapter outlines the tools that the municipalities and NYSDOT have at their disposal to implement the recommendations discussed in the previous chapter. These tools are best viewed in the context of their application at the local and regional levels.

LOCAL PLANNING TOOLS

In general, the **local zoning regulations** will be the most important tool for communities to guide and regulate development in accordance with this Corridor Management Plan. Each community needs to evaluate its current zoning and develop amendments that will codify the Corridor Management Plan to support the creation of growth areas and greenbelts. Such zoning amendments might include provisions for the following:

- Mixed-use Zoning;
- Limited Access Overlay Districts;
- Transfer of Development Rights;
- Lease of Development Rights; and
- Cluster By-law/Overlay Districts.

Changes to local **subdivision regulations** and **site plan review procedures** may also be needed to promote the Corridor Management Plan.

The Harlem Valley communities should also consider the development and adoption of local **design guidelines** that can be applied during the site plan and subdivision processes to implement the vision of the Corridor Management Plan. Each community needs to establish guidelines that address the following issues;

- The layout and design of local streets, sidewalks, and bicycle facilities;
- The relationship of buildings, driveways, landscaping, and parking to streets (access management);
- Architectural standards for buildings; and
- Standards for signs, to include materials, colors, and design.

The adoption of such guidelines provides a degree of consistency over time as planning and zoning board members change. The Appendices include references to various design guidelines, including Dutchess County *Greenway Connections,* which can serve as resources for the local communities in the implementation of this recommendation.

Table 3, Primary Responsibility Matrix, summarizes the primary responsibility for adopting and implementing the plan recommendations. The Corridor Management Plan is very much a long-range plan, and some components are not expected to become a reality for ten, fifteen, or even twenty years. It is important to take stock of conditions and reassess the plan at various intervals. The following is a brief summary of the initial "next steps" that should be undertaken to ensure the implementation of the Corridor Management Plan.

REGIONAL PLANNING TOOLS

Two documents require a coordinated effort between the municipalities and the NYSDOT. **The Harlem Valley Transportation Plan** depicts the major physical recommendations, including proposed cross-sections, capacity and safety improvements, and new pedestrian and bicycle facilities. The intent of the transportation plan is to guide municipalities, the county and the state on future projects in the area. Ideally, each community would adopt, by local legislation, those parts of the Harlem Valley Transportation Plan that are relevant to its circumstances. The Harlem Valley Partnership and the Poughkeepsie-Dutchess County Transportation Council will assist the communities with this task, if desired. Again, the transportation plan will evolve as conditions change or projects are implemented, and modifications to the plan should be coordinated and reviewed with NYSDOT to ensure consistency with state guidelines.

Similarly, the **Harlem Valley Signage Plan** should be developed and adopted by local legislation in cooperation with NYSDOT. This signage plan would establish guidelines specific to Route 22 that are consistent with NYSDOT regulations, and would establish structured guidelines for materials, colors and text that are consistent with the character of the area. The intent of the tool is to have the signage plan pre-approved by the NYSDOT and designate a local agency to review signage applications.

Table 3: Primary Responsibility Matrix

Plan Recommendations	Municipality	NYSDOT	Joint Effort
Short-term			
1.0 Growth in Defined Areas			
1.1 Define Priority Growth Area	X		
1.1.1 Mixed-use zoning	X		
2.0 Open Space Preservation			
2.1 Designate Greenbelts	X		
2.1.2 Lease development rights	X		
2.1.3 Transfer development rights	X		
2.1.4 Land acquisition through existing land trusts	X		
3.0 Harlem Valley Transportation Plan			X
3.1 Cross-section guidelines			
3.1.1 Rural			X
3.1.2 Highway commercial			X
3.1.2.1 Divided			
3.1.2.2 Undivided			
3.1.3 Village/hamlet			X
Intermediate			
2.0 Open Space Preservation			
2.1 Designate Greenbelts	X		
2.1.1 Cluster by-law/Overlay district	X		
3.0 Harlem Valley Transportation Plan			X
3.3 Capacity Improvements			
Long-term Capacity Improvements			
3.3.1 Aikendale Road, Pawling		X	
3.3.2 Coulter Avenue/Pine Street, Pawling		X	
3.3.3 Mill Street, Dover		X	
3.3.5 CR 21 (Pleasant Ridge Road), Dover		X	
3.3.6 Mill Street, Dover		X	
3.4 Safety Improvements			
Intersections with Route 22			
3.4.1 Aikendale Road, Pawling		X	
4.0 Design Guidelines	X		
5.0 Access Management			
5.1 Incorporate access management tools into site plan review and sub-division	X		
5.1.1 Shared driveways			
5.1.2 Shared parking/ connections			
5.1.3 Rear/side parking			
5.1.4 Corner sight distance			
5.1.5 Increase driveway setback from intersection			
5.2 Define/limit number of driveways through a Limited Access Overlay District			X
6.0 Signage			
6.1 Signage design guidelines	X		
6.2 Harlem Valley Signage Plan			X
7.0 Pedestrian/Bicycle Safety & Mobility			
7.1 Sidewalks in growth areas -- 0.5-mile radius			X
7.2 Village Traffic Calming			X
Long-term			
1.0 Growth in Defined Areas			
1.1 Define Priority Growth Area	X		
1.1.2 Density bonus	X		
1.1.3 Infrastructure provision	X		
3.0 Harlem Valley Transportation Plan			X
3.2 Roadway connections			
3.2.1 Provide secondary access roads			X
3.2.2 Encourage grid system	X		
3.3 Capacity Improvements			
Long-term Capacity Improvements			
3.3.7 Route 44/Route 343, Amenia		X	
3.4 Safety Improvements			
Intersections with Route 22			
3.4.3 Coulter Avenue/Pine Street, Pawling		X	
3.4.7 Dover High School, Dover	X		
3.4.9 Oniontown Road, Dover		X	
3.4.12 Haight Road, North East		X	
3.4.14 Route 199, North East		X	
3.4.15 Route 44/Route 22, Millerton		X	
Highway Segments along Route 22			
3.4.18 Grand Union to McDonald's, Dover		X	
7.0 Pedestrian/Bicycle Safety & Mobility			
7.3 Pedestrian/Bicycle connections in key locations			
7.3.1 Dover Plains to Tally Ho Mobile Home Park, Dover	X		
7.3.2 Amenia hamlet north to Maplebrook School, Amenia	X		
7.3.3 Route 22 at CR 67 (Quaker Hill Rd.) to Pawling Metro-North RR Station via Main St., Pawling (bicycle only)			X
7.3.4 CR 4 (Poplar Hill Rd.) to Tenmile River Metro-North RR Station via CR 5 (Sinpatch Rd.), Amenia (bicycle only)			X (County)
7.3.5 Route 343 to HVRT along Mechanic Street, North East (bicycle only)			X

NYSDOT CAPACITY AND SAFETY IMPROVEMENTS

The NYSDOT needs to consider and review the various capacity and safety recommendations in the context of their capital program, the PDCTC Transportation Improvement Plan (TIP), and proposed roadway projects within the Route 22 corridor. Some of the recommendations will require additional analysis and design prior to implementation.

CONCLUSION

The completion of the Route 22 Corridor Management Plan is a significant accomplishment for the six communities and the Harlem Valley Partnership. Route 22 runs through the heart of the Harlem Valley and this plan provides the framework to guide local municipalities and NYSDOT in making decisions about growth, site development and transportation improvements. Now is the time to move forward.

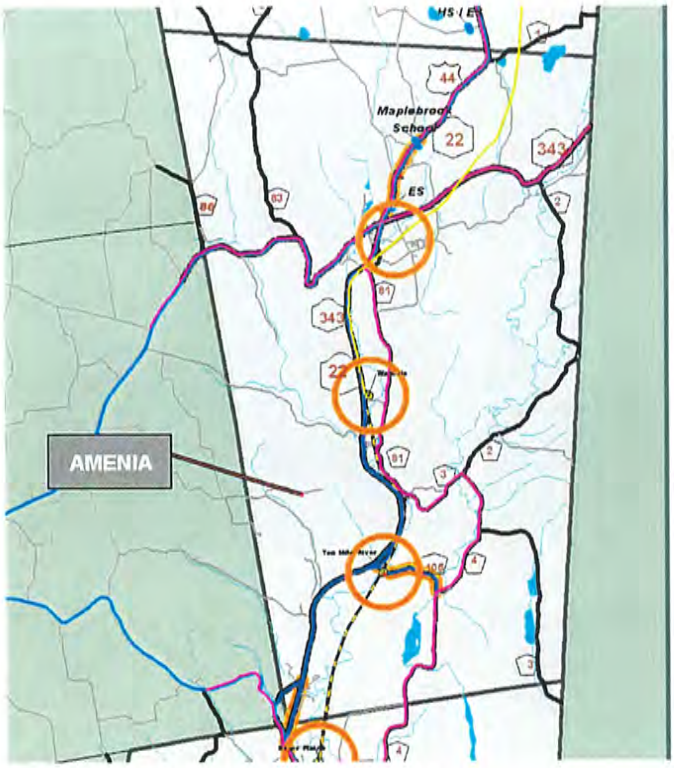
Appendix A. Progressed Strategies

1.0 GROWTH IN DEFINED AREAS

1.1 Define a 0.5-mile radius priority growth area.

Locations:

- Village of Pawling
- Wingdale—Former Harlem Valley Psychiatric Center
- Dover Plains
- Former Wassaic Developmental Center
- Amenia
- Village of Millerton



Example of priority growth area boundaries.

Existing Characteristics of Concern and/or Project Objectives: The growth boundary is an officially adopted line on a map showing the outermost limit of "urban" development within the planning horizon. As the planning period nears completion, the growth boundary will be reassessed to determine if it should be extended outward to accommodate new growth. The initial radius of the growth boundary is established with the pedestrian in mind. "The quarter- to half-mile radius from the village center is

generally considered to mark the limit that most people are willing to walk."[1]

Implementation of a growth boundary will limit suburban-style sprawl development while maintaining rural character with distinct mixed-use centers. Limiting the growth area encourages walking and bicycling as the primary modes of transportation, reducing traffic and parking impacts to the area.

Tompkins County, New York, has established a Growth Boundary and Open Space Committee that will determine where growth boundaries should be established. The County will implement the growth boundary goals through a Purchase-of-Development Rights program and farmland protection measures.[2]

Probable Cost:	Medium
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use

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[1] Sutro, Suzanne, AICP. *Planning Advisory Service Report Number 430—Reinventing the Village*. Chicago, IL: American Planning Association, December 1990.

[2] http://cpatompkins.org/EandU/EandU4.html

1.1.1 Modify zoning to provide a mixed-use category within growth areas to permit both commercial and residential (including multi-family) uses.

Locations:

- Former Wassaic Developmental Center
- Amenia
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives:
Mixed-use development encourages walk and bicycle trips between the various uses. This type of environment reduces the need for additional travel and parking capacity, thereby reducing traffic congestion and improving safety. An example of this type of development is the Village of Pawling Zoning Code, which contains a schedule of "urban regulations" providing for six building types that are now allowed in designated zoning districts (Pawling zoning law § 98-13 and Schedule B). These regulations are supplemented by the Village's comprehensive plan, which calls for more concentrated land patterns with dedicated open space, a network of trails, a regional green-space network, and residential developments fitted around a revitalized central business district. Another example of a village-style development bylaw/ordinance is available from the Cape Cod Commission's Model Bylaws and Regulations Project (http://www.vsa.cape.com/~cccom/bylaws/village.html).

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Negligible

1.1.2 **Provide a density bonus provision in the zoning code to encourage development within the defined growth areas.**

Locations:

- Village of Pawling
- Wingdale—Former Harlem Valley Psychiatric Center
- Dover Plains
- Former Wassaic Developmental Center
- Amenia
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives:
The density bonus will compensate developers for staying within the growth boundary rather than developing in an undeveloped area. Development within the growth area typically requires additional coordination and is associated with higher construction costs, due to the adjacent properties and the location of utilities. It is considered feasible to provide the density bonus in growth areas that have adequate infrastructure. Where density bonuses are granted, the effects of the increased density on the environment must be evaluated and mitigated, if necessary.

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Traffic, Environmental

1.1.3 Provide the necessary infrastructure (sewer and water) in growth areas to support higher density levels.

Locations:

- Village of Pawling
- Wingdale—Former Harlem Valley Psychiatric Center
- Dover Plains
- Former Wassaic Developmental Center
- Amenia
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives:
Adequate infrastructure is needed within growth areas to support a higher level of development. Without the provision of adequate public investment, it will not be feasible to achieve compact settlements in growth areas and outlying, undeveloped countryside. Community members have expressed concern regarding the initial construction costs and its impact on current tax rates and utility costs. Initial inefficiencies in the operation of utilities may occur until enough development has taken place to reach the optimal capacity of the system.

Probable Cost:	High
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use

2.0 OPEN SPACE PRESERVATION/GREENBELTS

2.1 Designate greenbelts around growth areas and provide necessary acquisition/zoning to ensure appropriate development.

Locations:

- Village of Pawling
- Wingdale—Former Harlem Valley Psychiatric Center
- Dover Plains
- Former Wassaic Developmental Center
- Amenia
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives: Once the greenbelt areas have been designated, each community should develop a plan to maintain these areas as "green." This can be accomplished through open space acquisition through local land trusts, lease or transfer of development rights, or requiring cluster development.

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use

2.1.1 Modify zoning to provide an Open Space Preservation Overlay Zone, which requires cluster development.

Locations:

- Pawling
- Dover
- Amenia

- North East

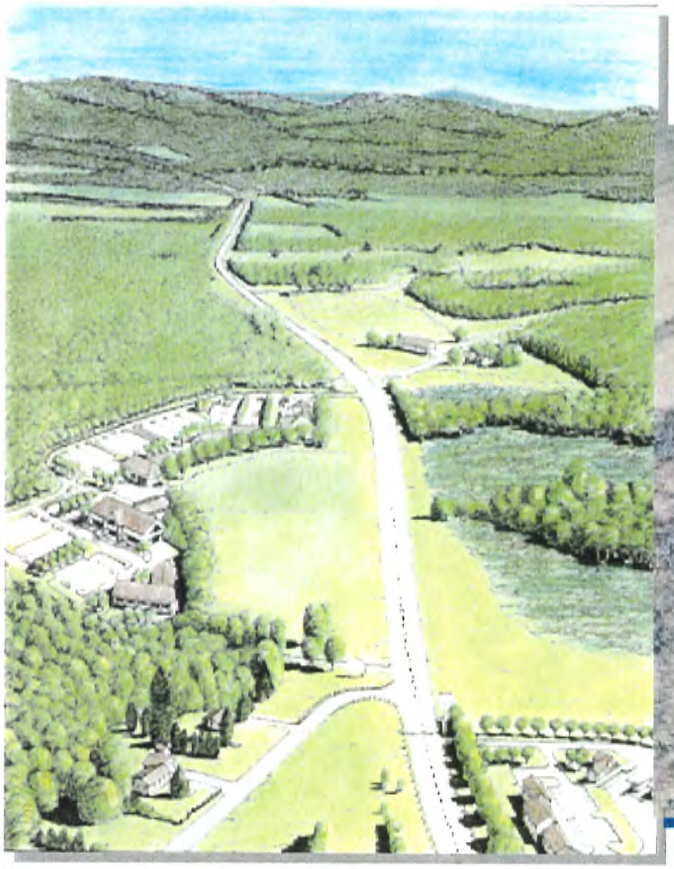
Existing Characteristics of Concern and/or Project Objectives:
The zone would encompass growth areas to effectively create a greenbelt, differentiating between village/hamlet and rural areas, without the need for land acquisition. The zone could also be designated in areas of unique rural character or scenic vistas. Present zoning, although allowing clustering, does not give planning boards the authority to require it. Requiring clustering is possible under Section 281 of Town Law and 7.38 of Village Law.[3] Design standards should be coupled with clustering to ensure attractive development, with adequate open space and maintained or increased property values. An example of a residential development rights bylaw with a provision for a mandatory cluster requirement is available from the Cape Cod Commission's Model Bylaws and Regulations Project (http://www.vsa.cape.com/~cccom/bylaws/cluster.html).

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Traffic, Social/Land Use

[3] *Town of North East Comprehensive Plan.*

Conventional residential development.

Cluster residential development.



Cluster commercial development.

Conventional commercial development.

Drawing reprinted with permission from: Dealing with Change in the Connecticut River Valley: A Design Manual for Conservation and Development.

2.1.2 **Lease development rights.**

Locations:

- Amenia
- North East

Existing Characteristics of Concern and/or Project Objectives:
Lease development rights from farmers in exchange for a reduction in property tax assessment during a long-term lease period (20 years or more). Back taxes will be exacted if use of land is changed prior to the end of the lease period.

The benefit of this tool over purchasing development rights is that the landowner still retains title to the land and retains its value. If a property owner chooses to develop the land prior to the end of the lease period, the town will impose a penalty equal to the reduced tax assessment over the life of the lease period. The property owner typically passes this cost on to a potential future developer. Therefore, neither the town nor the property owner will suffer a loss if the lease is broken. The negative aspect of this tool is that it does not provide for permanent open space preservation.

Probable Cost:	Moderate
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use

2.1.3 Transfer development rights.

Locations:

- Pawling
- Village of Pawling
- Dover
- Amenia
- North East
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives: Transfer development rights from designated greenbelts to designated growth areas. This technique allows the transfer of development rights from one parcel to another to achieve open space preservation objectives. Transfer of development rights bylaws is fairly complicated to design and use and requires a strong development market to be successful. It is often difficult to provide convenient matches with a development time period. An example of a transfer of development rights bylaw/ordinance is available from the Cape Cod Commission's Model Bylaws and Regulations Project (http://www.vsa.cape.com/~cccom/bylaws/tdr.html).

Probable Cost:	Low
Estimated Technical Requirements:	Difficult
Potential Environmental Impacts:	Negligible

2.1.4 Land acquisition through existing land trust.

Location: Harlem Valley

Existing Characteristics of Concern and/or Project Objectives:

Land trusts are private, non-profit organizations dedicated to preservation of open space. Land trusts use several techniques to preserve open space:

1. ***Gifts and bargain sales.*** Private land owners are often more willing to give or sell land at a reduced cost to a non-profit organization. Owners also can benefit from tax shelter provisions of state and federal tax codes if they sell below the appraised value or give the property to such groups.
2. ***Purchase.*** Land trusts use fund-raising campaigns to support the purchase of properties.
3. ***Limited or Partial Development.*** Land trusts can acquire a property and subdivide parcels not needed for open space purposes. The proceeds from the sale of these parcels can be used to finance other acquisitions.[4]

It was generally agreed at the CPTF and public meetings to proceed with land acquisition through existing land trusts, including the Dutchess Land Conservancy and the Nature Conservancy.

Probable Cost: Low (to municipalities)

Estimated Technical Requirements: Average

Potential Environmental Impacts: Negligible

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[4] Yaro, Robert D. "Preserving Open Space in Rural and Suburban Communities." Center for Rural Massachusetts.

3.0 HARLEM VALLEY TRANSPORTATION PLAN

Incorporates transportation systems management and safety improvements.

Location: Route 22 corridor

Existing Characteristics of Concern and/or Project Objectives: The Harlem Valley Transportation Plan is a document that can be adopted by the participating communities. This plan depicts the rights-of-way for proposed roads and modification to existing roads. The Plan would allow the municipality to protect the right-of-way from development and it provides developers with a clear understanding of road location needs. The plan also guides the municipalities, the county and the state on future projects by providing a clear vision for the area. The following strategies, in this section, will be progressed through the Harlem Valley Transportation Plan.

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Negligible

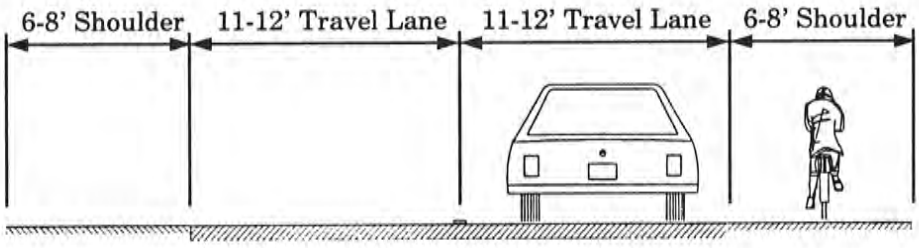
3.1 Cross-section guidelines.

Locations: As defined below for the various sections

Existing Characteristics of Concern and/or Project Objectives: Establish cross-section guidelines for the Route 22 corridor that defines the community's vision for the corridor. These guidelines will be incorporated in future development and highway reconstruction projects as they occur.

Probable Cost:	As defined below for the various sections
Estimated Technical Requirements:	As defined below for the various sections
Potential Environmental Impacts:	As defined below for the various sections.

3.1.1 Rural cross-section guidelines.



Locations on Route 22:

- River Road (Pawling) to Hutchinson Ave (Dover)
- Rural Ave (Dover) to South Nellie Hill Rd (Dover)
- Route 343 north leg (Amenia) to Lake Road (Amenia)
- Hamms Rd (Amenia) to the southern village limits in Millerton
- Irondale Road (North East) to Columbia County Line

Existing Characteristics of Concern and/or Project Objectives: The existing rural cross section consists of 11- or 12-foot travel lanes with minimal paved shoulders. This existing narrow cross section does not facilitate good traffic flow because there is insufficient room for slow-moving or broken-down vehicles to move to the side of the roadway to let other vehicles pass. Provision of standard widths for travel lanes and shoulders consistent with existing and expected traffic volumes would make traffic flow through the corridor much more efficient and safer.

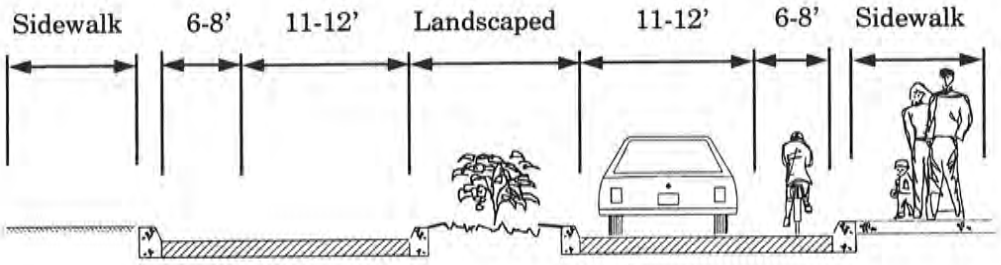
Probable Cost: The cost to improve the roadway to meet the recommended guidelines is high. However, most of this construction cost could come from state and/or federal transportation improvement funds. The cost to the local community would be low to moderate.

Estimated Technical Requirements: Low

Potential Environmental Impacts: Minor potential green space and wetland impacts due to roadway widening. Temporary traffic impacts during construction.

3.1.2 Highway commercial cross-section guidelines.

3.1.2.1 Develop a divided highway with a center landscaped median.



Location on Route 22: Pawling, south of Route 55

Existing Characteristics of Concern and/or Project Objectives: Medians can either be raised or flush with the travel way. They can consist of grass or other landscaping material or may simply be paved. Medians limit access across the highway and, as a result, reduce the number of potential vehicle conflict points. The community has expressed concern that this strategy is inconsistent with the rural character of most of the study area. Therefore, implementation of this strategy is limited to the existing commercially developed section in Pawling. The preferred median design would be a raised island with landscape material and accommodation of turning lanes where appropriate. This cross section guideline also includes a curbed roadside to limit driveway width and number of access points. The curb is offset from the edge of travel

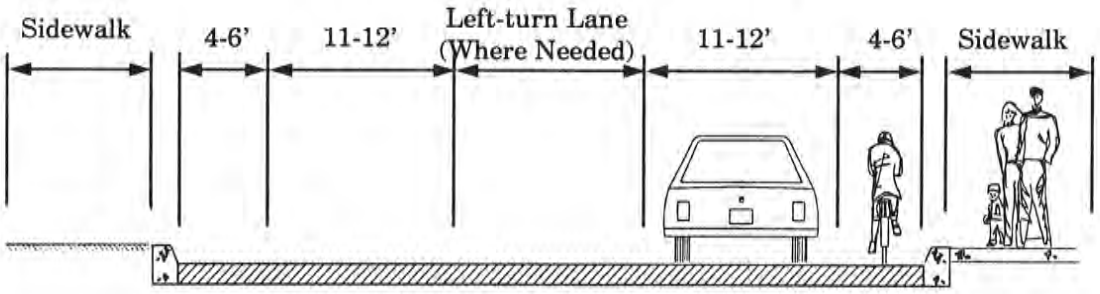
lane to provide adequate shoulder width for slow moving or broken-down vehicles and also provides a safe travel way for bicyclists. This section also includes sidewalks where practical to safely accommodate pedestrians.

Probable Cost: The cost to improve the roadway to meet the recommended guidelines is high. However, most of this construction cost could come from state and/or federal transportation improvement funds. The cost to the local community would be low to moderate.

Estimated Technical Requirements: Low

Potential Environmental Impacts: Minor potential green space and wetland impacts due to roadway widening. Temporary traffic impacts during construction.

3.1.2.2 **Develop an undivided highway**



Locations on Route 22:

- Village of Pawling corporate limits to River Road (Pawling)
- Hutchinson Ave (Dover) to Rural Ave (Dover)
- South Nellie Hill Rd (Dover) to North Nellie Hill Rd (Dover)

- Cart Road (Dover) to Route 343 north leg (Amenia)
- ½ mile north of Route 343/44 intersection (Amenia) to Hamms Road (Amenia)
- Village of Millerton corporate limits to Irondale Road (North East)

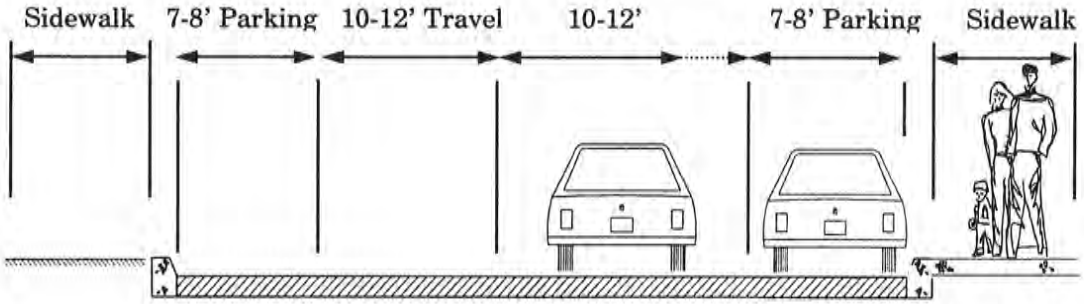
Existing Characteristics of Concern and/or Project Objectives: The undivided cross section guideline is similar to the divided cross section discussed above except for the raised median. With this cross section, mid-block left turns are allowed to enter driveways. Where left turn movements are high, at some intersections for example, additional roadway width should be provided to accommodate a left turn lane. Provision of this left turn lane removes stopped vehicles from the through travel lane which better facilitates traffic flow and provides a safer roadway by reducing rear-end accident potential. The provision of roadside curbing in commercial areas reduces confusion and makes for better access and egress to adjacent properties. The curb offset or shoulder and the provision of sidewalks accommodate bicyclists and pedestrians.

Probable Cost: The cost to improve the roadway to meet the recommended guidelines is high. However, most of this construction cost could come from state and/or federal transportation improvement funds. The cost to the local community would be low to moderate.

Estimated Technical Requirements: Low (from the municipality perspective)

Potential Environmental Impacts: Minor potential green space and wetland impacts due to roadway widening. Temporary traffic impacts during construction.

3.1.3 **Village/hamlet cross-section guidelines.**



Locations:

- Within Village of Pawling corporate limits
- Hamlet of Dover Plains from North Nellie Hill Rd to Cart Road
- Hamlet of Amenia from Lake Road to ½ mile north of Route 343/44 intersection
- Within Village of Millerton corporate limits

Existing Characteristics of Concern and/or Project Objectives: The village/hamlet cross section contains similar features as the commercial cross section as discussed above and these are provided for similar reasons. Some of the existing village/hamlet sections of Route 22 already contain these features. This guideline is to ensure the existing characteristics are maintained. Provision on street parking should be provided on side roads off Route 22.

Probable Cost: The cost to improve the roadway to meet the recommended guidelines is high. However, most of this construction cost could come from state and/or federal transportation improvement funds. The cost to the local community would be low to moderate.

Estimated Technical Requirements: Low

Potential Environmental Impacts: Minor potential green space and wetland impacts due to roadway widening. Temporary traffic impacts during construction.

3.2 Roadway connections

3.2.1 **Provide secondary access roads.**

Locations:

- Pawling, south of Route 55
- Dover, in areas of commercial strip development

Existing Characteristics of Concern and/or Project Objectives: Secondary access/service or feeder roads remove turning traffic from the through route (Route 22) while maintaining access to businesses. Access/service roads are typically located parallel to and alongside the through route, although, the newest approach is to place these facilities behind the properties. Access/service roads alignments should be identified in advance of development or redevelopment and documented through official mapping. Easements are then acquired as development occurs and are recorded with the deed.

Probable Cost:	High
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use, Environmental

3.2.2 **Encourage grid system.**

Locations: Throughout the Harlem Valley with particular emphasis on the priority growth areas:

- Village of Pawling
- Wingdale—Former Harlem Valley Psychiatric Center
- Dover Plains
- Former Wassaic Developmental Center
- Amenia
- Village of Millerton

Encourage Grid System

Discourage dead end

Source: Hamlet Design Guidelines, Dutchess County Department of Planning and

Existing Characteristics of Concern and/or Project Objectives: As development occurs, new streets should be added to the existing network in a manner that maximizes mobility and encourages alternative modes of transportation (i.e., bicycling and walking). An effort should be made to encourage a grid pattern of short, straight streets that provide alternative travel patterns to avoid congestion associated with construction or accident activity. Cul-de-sacs and curvilinear streets should be avoided because they limit the distribution of traffic, increasing congestion at load points, and increase travel time.

Probable Cost:	Low, cost primarily borne by developer
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use, Environmental, Infrastructure

3.3 Capacity Improvements

Short-Term Capacity Improvements

3.3.1 Aikendale Road, Pawling

Existing Characteristics of Concern and/or Project Objectives:
The traffic signal at this intersection currently provides an acceptable level of service for vehicles traveling through the intersection. As traffic volumes increase, the average delay for motorists traveling through the intersection will also increase. The movements affected most by the increased traffic volume at this location include:

- Northbound shared through and right turns
- Westbound left turns

Making changes to the signal operations would improve the level of service for the intersection and would decrease the delay. Changing the signal phasing or the timings or providing additional signal heads for turning movements can improve traffic flow through the intersection and decrease delays.

Probable Cost:	Low
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	None

3.3.2 Coulter Avenue/Pine Street, Pawling

Existing Characteristics of Concern and/or Project Objectives:
The recently installed traffic signal at this intersection (1999) also currently provides an acceptable level of service for vehicles traveling through the intersection. But again, as traffic volumes increase, the average delay for motorists traveling through the intersection will also increase. The movements affected most by the increased traffic volume at this location include all eastbound movements. Making changes to the signal operations would improve the level of service for the intersection and would decrease the delay. Changing the signal phasing or the timings or providing additional signal heads for turning movements can improve traffic flow through the intersection and decrease delays.

Probable Cost: Low
Estimated Technical Requirements: Low
Potential Environmental Impacts: None

3.3.3 Mill Street, Dover

Existing Characteristics of Concern and/or Project Objectives:
This intersection currently operates with tolerable delays during peak travel periods but will have capacity problems in the future as traffic volumes increase. The movements that will experience the biggest increased delays are:

- Northbound through and right turns
- All westbound movements

Adjusting the signal operations by changing the signal phasing or the timings can improve traffic flow through the intersection and decrease delays, but more significant improvements such as

providing additional lanes will also probably be required to improve capacity (see long-term capacity improvements below).

Probable Cost: Low

Estimated Technical Requirements: Low

Potential Environmental Impacts: None

Long-Term Capacity Improvements

3.3.4 CR 67 (Quaker Hill Road)/East Main Street, Pawling

Existing Characteristics of Concern and/or Project Objectives:
This intersection will suffer from capacity deficiencies similar to those discussed above, but unlike the above intersections that can be improved by making adjustments to the existing signals, this intersection needs more substantial changes to the existing signal to increase capacity. A capacity analysis showed that with no geometric improvements, this intersection would operate at level of service C, with the eastbound movement at level of service (LOS) D in the year 2020. This intersection would benefit by providing a through/left turn lane and a separate right-turn lane for the eastbound movement. This lane addition would improve the LOS for the eastbound traffic to C and decrease the amount of delay for the intersection as a whole (see **Appendix D** for complete level of service data). Along with this lane addition, corresponding signal head modifications would be necessary. Better alignment of the eastbound and westbound approaches would also greatly improve capacity and safety.

Probable Cost: High

Estimated Technical Requirements: Low

Potential Environmental Impacts: ROW Acquisition likely

3.3.5 CR 21 (Pleasant Ridge Road), Dover

Existing Characteristics of Concern and/or Project Objectives:
As traffic increases in the future along Route 22, it will become increasingly difficult for traffic headed westbound on Route 55 to make left turns onto Route 22 southbound. This is also a safety concern due to the angle at which Route 55 intersects with Route 22. To improve the westbound left-turn capacity deficiency and at the same time improve safety, all westbound traffic should be directed to the signalized intersection of Route 22 and CR 21 (Pleasant Ridge Road). The capacity analysis determined, that in the year 2020, the intersection would operate at LOS B with minimal delay. Then, taking into consideration the projected volume of the redirected westbound left-turn movement, the intersection delay increases to LOS C (see **Appendix D** for complete level of service data). The intersection has adequate capacity to accommodate the increased left-turn volume without geometric changes. The section of roadway from the intersection of Route 22 and Route 55 to the intersection of Route 55 with CR 21 (Pleasant Ridge Road) can be maintained as a one-way slip ramp for northbound traffic on Route 22 wanting to go east on Route 55.

Probable Cost: Low
Estimated Technical Requirements: Low
Potential Environmental Impacts: None

3.3.6 **Mill Street, Dover**

Existing Characteristics of Concern and/or Project Objectives:
Short-term adjustments to the signal operations can be conducted to solve some of the capacity issue at this intersection. However, as future traffic volumes increase, more significant changes will become necessary to make more substantial capacity improvements. A capacity analysis with signal timing and phasing optimization for the year 2020 showed that this intersection would operate at LOS C, but the westbound movement would fail. To improve capacity for westbound Mill Street traffic, separate right- and left-turn lanes should be provided. The additional lane improves the westbound LOS to C and decreases the delay for the intersection overall (see **Appendix D** for complete level of service data).

Probable Cost:	High
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	Possible ROW Impacts

3.3.7 **Route 44/Route 343, Amenia**

Existing Characteristics of Concern and/or Project Objectives:
Capacity issues due to increased future traffic volumes at this intersection arise due to the lack of turn lanes. Using the existing geometry and projected volumes for the year 2020, an analysis determined that the intersection would operate at LOS D with considerable delays, especially for the southbound movement. In particular, the eastbound and southbound movements warrant separate left-turn lanes to improve the overall operation

of the intersection. These additional lanes improve to LOS B with minimal delays (see **Appendix D** for complete LOS data).

Probable Cost:	High
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	ROW Impacts Likely

3.3.8 **Route 44 (Main Street), Millerton**

Existing Characteristics of Concern and/or Project Objectives: Capacity concerns are not as significant for this intersection as they are for the other intersections. According to a capacity analysis for 2020, the southbound movement does experience some increased delay (LOS D) due to increased volumes and would benefit from separate lanes for through and left-turn movements. The addition of a left-turn lane for southbound traffic improves the movement to LOS C (see **Appendix D** for complete LOS data). More significant are the delays associated with truck traffic trying to complete the turn from northbound Route 22 to eastbound Route 44. The turning radii at this intersection are not sufficient to accommodate the truck traffic that frequently travels through this intersection. This is addressed in alternative 3.4.15 Route 44/Route 22. The strategy for this location would be to widen the intersection. The cost and environmental impacts to do so would be high.

Probable Cost:	High
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	High, ROW and relocation impacts

3.4 Safety Improvements

Intersections with Route 22

3.4.1 Aikendale Road, Pawling

Existing Characteristics of Concern and/or Project Objectives: This intersection is a safety concern primarily because of the size of the intersection and traffic volumes associated with it. Over a 3-year period between 1996 and 1999, 13 accidents have occurred at this intersection. Of these accidents, 4 have included injuries, and 6 have included reportable property damage. Safety concerns may be remedied by providing the capacity improvements discussed under Section 3.3 above. Ensuring that the driveway alignment on the west side of the intersection is coordinated with Aikendale Road will also ensure safe operation of this intersection.

Probable Cost:	Low
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	None

3.4.2 CR 67 (Quaker Hill Road)/East Main Street, Pawling

Existing Characteristics of Concern and/or Project Objectives: The concern for safety at this intersection is due to the vertical profile of Route 22 and resulting short sight distance. It is difficult for vehicles wanting to make a right turn onto Route 22 from East Main Street to see southbound vehicles on Route 22 because of a hill blocking sight distance. There is also a safety concern with opposing left-turn movements because of the alignment of East Main Street with CR 67 (Quaker Hill Road) (see long-term capa-

city improvements discussed under 3.3.4). Over a 3-year period between 1996 and 1999, 21 accidents have occurred at this intersection. Of these accidents, 8 have included injuries, and 13 have included reportable property damage. Correcting these concerns by changing the profile of Route 22 and re-aligning the intersection would be very costly, but should be considered as capital improvements to Route 22 are developed. An economical and short-term solution could be to restrict right turns on red. Currently, CR 67 (Quaker Hill Road) is posted for no turns on red, but East Main Street is not. Trees within the highway ROW near the intersection could also be removed to improve sight distance. Sight distance measurements should be taken and reviewed at this intersection to determine if these recommendations would address the concern.

Probable Cost:	Low
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	None

3.4.3 **Coulter Avenue/Pine Street, Pawling**

Existing Characteristics of Concern and/or Project Objectives:
NYSDOT installed a traffic signal at this intersection to address a previous accident problem, and there is a perceived safety concern that is related to sight distance limitations due to the signal poles and signs in the vicinity. Future accident analyses should be conducted to determine if the accident rate has decreased. If accidents are still a problem at this intersection, a sight distance analysis should be conducted to verify the perceived sight distance concern and determine if mitigation is necessary. The

relatively heavy eastbound left-turn movement could potentially warrant a left-turn lane, but the configuration of Coulter Avenue would make developing a left-turn lane difficult. Reducing the signage at the intersection and possible relocation of the signal poles could improve sight distance, if warranted.

Probable Cost:	Low
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	None

3.4.4 Kitchen Road, Dover

Existing Characteristics of Concern and/or Project Objectives: The perceived concern at this location is vehicles slowing down to make a left turn onto Kitchen Road and being rear-ended by following vehicles. No accident information was identified during this study to support this concern, but accidents could potentially occur at this location and go unreported. There is similar concern for southbound vehicles. The apparent volume of turning vehicles does not warrant a turn lane at this time. Accident data for this location should be reviewed again in the future to verify the problem. Advance warning signage could be posted to warm motorists of the upcoming intersection.

Probable Cost:	Low
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	Reduces traffic flow

3.4.5 CR 26 (Cricket Hill Road), Dover

Existing Characteristics of Concern and/or Project Objectives:
Vehicles traveling westbound on CR 26 (Cricket Hill Road) toward Route 22 miss the stop sign and enter the intersection inadvertently. Intersection sight distance is also considered to be a problem due to rock outcroppings, trees, and the profile of Route 22. These are perceived problems at this location. There are no reported accident data or sight distance measurements to back up this concern. The strategy at this location would be to bring more attention to the stop sign on CR 26 by increasing the size of the sign, and adding additional warning signs. Trees should also be removed where possible to increase visibility of signs and Route 22. As capital improvements are made to Route 22, more significant grading changes should be considered to increase intersection sight distance.

Probable Cost:	Low
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	None

3.4.6 Sherman Hill Road, Dover

Existing Characteristics of Concern and/or Project Objectives:
Sight distance is again the perceived concern here. No reported accident data or sight distance measurements exist to support this concern. The skew angle at which Sherman Hill Road intersects with Route 22 and the rock cuts make it difficult to see approaching vehicles on Route 22. Improving the intersection sight distance would involve costly re-aligning of the intersection and cutting back of the rock slopes along Route 22.

Probable Cost: Moderate to high, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Potential ROW impacts, land use

3.4.7 **Dover High School, Dover**

Existing Characteristics of Concern and/or Project Objectives: The left turn out of the driveway onto Route 22 headed southbound appears to have limited sight distance because of the rise in Route 22 to the north. The heavy volume of traffic turning into and out of the school entrance in the morning and afternoon, respectively, in addition to the heavy volume of traffic on Route 22, is also a concern. There were no reported accidents at this location. Provision of a traffic signal at this location could ease safety concerns, if warranted. A signal warrant analysis should be performed for this intersection to determine if a traffic signal is warranted. If approved by NYSDOT, the traffic signal at the school driveway must be installed and funded by the school district (or other party), since NYSDOT is prohibited by law from funding signals at school driveways.

Probable Cost: Low

Estimated Technical Requirements: Average

Potential Environmental Impacts: Minimal

3.4.8 Dover Furnace Road, Dover

Existing Characteristics of Concern and/or Project Objectives: The concerns at this intersection are similar to those for Sherman Hill Road. Rock outcroppings, trees and brush limit intersection sight distance. These are perceived problems at this location. There are no reported accident data or sight distance measurements to support this concern. Removal of obstructing trees and brush would help improve sight distance to a limited degree, but more substantial re-grading of rock cut slopes is necessary to improve sight distance to reasonable levels.

Probable Cost: High, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Land acquisition likely

3.4.9 Oniontown Road, Dover

Existing Characteristics of Concern and/or Project Objectives: The problem at this intersection is that it is too close to the Metro-North Railroad tracks. There is not enough storage space for vehicles waiting to turn onto Route 22 from Oniontown Road. NYSDOT currently has a project in the design phase that will relocate the intersection to a point farther north on Route 22 to eliminate the need for crossing the railroad tracks.

Probable Cost: Low

Estimated Technical Requirements: Low

Potential Environmental Impacts: None

3.4.10 CR 105 (Sinpatch Road), Amenia

Existing Characteristics of Concern and/or Project Objectives: As CR 105 (Sinpatch Road) approaches Route 22, it splits and intersects Route 22 at two locations. The south intersection has poor sight distance due to rock outcroppings and the skew angle of the intersection. The north intersection has fewer obstructions but still intersects at an undesirable angle. There are no reported accident data or sight distance measurements to support the concerns at either location. One strategy at this location could be to eliminate the south intersection and direct all vehicles to the north intersection where sight distance is somewhat better. Improvement of the intersection angle would also be beneficial. If the south intersection is maintained, the sight obstructions should be removed and the intersection angle improved to the extent possible.

Probable Cost:	Low
Estimated Technical Requirements:	Low to Average
Potential Environmental Impacts:	Minimal

3.4.11 CR 81 (Old Route 22), Amenia

Existing Characteristics of Concern and/or Project Objectives: Sight distance and the associated accident rate are concerns at this intersection. The sight distance for the CR 81 approach to the intersection can be limited by the intersection skew angle and steep vertical approach grade. Driveways on the eastbound approach to the intersection have limited sight distance due to the horizontal curve of Route 22 and embankments along the side of Route 22. The sight distance for the driveway is approximately

590 feet, which is less than the standard 1,155 feet for a two-lane rural highway. There have been 13 accidents at this intersection during a 3-year study period. Improving the intersection sight distance involves costly re-aligning of the intersection and cutting back of the slopes along Route 22.

Probable Cost: Moderate to high, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Potential ROW impacts, land use

3.4.12 **Haight Road, North East**

Existing Characteristics of Concern and/or Project Objectives: The concern here is similar to the concern for the Dover High School entrance. Left turns from Rout 22 to Haight Road appear to have limited sight distance. The heavy volume of traffic turning into and out of the school is also a concern. No reported accident data, sight distance measurements, or traffic volume data exist to support these concerns. These conditions should be verified and quantified prior to proposal of improvements. Provision of a traffic signal at this location may ease safety concerns, if warranted. A signal warrant analysis should be performed for this intersection to determine if a traffic signal is warranted. The slip ramp on the northwest corner of the intersection could also be eliminated or made one-way from Route 22 to Haight Road.

This would improve the sight distance angle for vehicles making left turns from Haight Road onto Route 22 northbound.

Probable Cost: Low

Estimated Technical Requirements: Average

Potential Environmental Impacts: Minimal

3.4.13 **Downey Road, North East**

Existing Characteristics of Concern and/or Project Objectives: The concern again at this intersection is sight distance. There are no reported accident data or sight distance measurements to support this concern, however. Sight distance could be improved somewhat by clearing some of the existing brush along Route 22. To provide the standard sight distance, significant profile modifications to Route 22 would be necessary. As transportation improvements are developed in this area, actual sight distance measurements should be taken and improved to the extent possible.

Probable Cost: High, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Land acquisition likely

3.4.14 **Route 199, North East**

Existing Characteristics of Concern and/or Project Objectives: This intersection is another "Y" intersection with separate, skewed connections to Route 22. One leg a yield controlling access onto Route 22. To make this a safer intersection, it should be reconfigured into a 90° intersection with all vehicles having to

stop before turning onto Route 22. There is also a perceived accident problem with left turns onto Route 199 from northbound Route 22. No accidents were reported during the 3-year study period used for this report. Provision of a left-turn lane, if warranted, and wider shoulders according to the recommended cross section guidelines would address this concern.

Probable Cost: Moderate

Estimated Technical Requirements: Average

Potential Environmental Impacts: None

3.4.15 **Route 44/Route 22, Millerton**

Existing Characteristics of Concern and/or Project Objectives: This intersection has corner radii that are too tight to accommodate large tractor-trailer trucks traveling northbound on Route 22 and turning right on Route 44. Larger trucks have to swing wide into the opposing lane and onto the sidewalk in order to complete the turn. This is a perceived problem at this intersection. No data are available regarding the frequency of these conflicts, and no reported accident data were available. The strategy to improve safety at this location would be to consider NYSDOT limitations on the overall length of tractor-trailers making this turn. It is recommended that a detailed study of this location be conducted, including documentation of the frequency of truck turns, vehicle size, and pedestrian activity and a detailed accident analysis.

Probable Cost: High

Estimated Technical Requirements: Average

Potential Environmental Impacts: Social, Land-use, ROW Impacts

Highway Segments along Route 22

3.4.16 Dover High School to East Duncan Hill Road, Dover

Existing Characteristics of Concern and/or Project Objectives: The concern at this location is the vertical grade of Route 22 and the inability to pass mining trucks. Over a three-year period, 9 accidents have occurred on this section of roadway, resulting in an accident rate of 1.54 accidents per million vehicle miles (Acc/MVM). This is less than the statewide average of 1.98 Acc/MVM for similar roadways. Provision of a climbing lane would provide a way to get around slow-moving vehicles climbing the hill, but many impacts are associated with constructing a climbing lane, including construction cost, ROW acquisition, and environmental factors.

Probable Cost: High, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Land acquisition possible

3.4.17 Crossing Swamp River, Dover

Existing Characteristics of Concern and/or Project Objectives: The concerns for this roadway section are the same as for the Dover High School to East Duncan Hill Road section with similar strategies. Over a three-year period, 6 accidents have occurred

on this section of roadway, resulting in an accident rate of 7.21 Acc/MVM. This is significantly more than the statewide average of 1.98 Acc/MVM for similar roadways. Further investigation will be required to review the accident history in detail to determine if the proposed improvement and/or other improvements could reduce the accident rate on this section.

Probable Cost: High, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Land acquisition possible

3.4.18 **Grand Union to McDonald's, Dover**

Existing Characteristics of Concern and/or Project Objectives: This section of roadway has several driveways to commercial establishments along Route 22. Over a three-year period, 13 accidents have occurred on this section of roadway, resulting in an accident rate of 15.62 Acc/MVM. This is significantly more than the statewide average of 1.98 Acc/MVM for similar roadways. Further investigation would be required to determine if the provision of a center left-turn lane would address the types of accidents that have occurred here.

Probable Cost: Moderate to High

Estimated Technical Requirements: Average

Potential Environmental Impacts: Social, Land-use, ROW Impacts

4.0 DESIGN GUIDELINES

Locations:

- Pawling
- Village of Pawling
- Dover
- Amenia
- North East
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives: The pattern of development prescribed in most zoning codes is suburban, consisting primarily of single-use districts, expansive subdivisions, and strip commercial development. This is contrary to the tradition settlement patterns that established the historic hamlets and villages of the Harlem Valley. Design guidelines recognize that current development trends do not necessarily give people what they want. Guidelines regulate development for consistency with the vision of the community.[5]

Design guidelines typically cover the layout and design of streets and the relationships of buildings, driveways, landscaping, and parking areas to streets. These guidelines can be used in conjunction with architectural standards and signage guidelines. Guidelines provide consistency from development to development and over time as membership in the planning board changes. Separate guidelines should be

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[5] Dutchess County Department of Planning and Development. *Hamlet Design Guidelines*. Albany, New York: New York Planning Federation, October 1994.

developed to address the varying needs of highway commercial areas, residential subdivisions, and mixed-use villages and hamlets.

Dutchess County has prepared several guideline documents that can be adopted by local communities or used as a template to create guidelines more specific to the values of the individual community. The Dutchess County Guidelines include Hamlet Design Guidelines, Rural Development Guidelines, Roadscape Guidelines, and Design Guide for Rural Roads. An example of a village-style development bylaw/ordinance is available from the Cape Cod Commission's Model Bylaws and Regulations Project (http://www.vsa.cape.com/~cccom/bylaws/village.html).

Design guidelines should be incorporated into the site plan review and sub-division regulations.

Probable Cost:	Low to Moderate
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Positive

5.0 Access Management

5.1 Modify Site Plan Review and Sub-division Regulations to incorporate Access Management Tools

Locations:

- Pawling
- Village of Pawling
- Dover

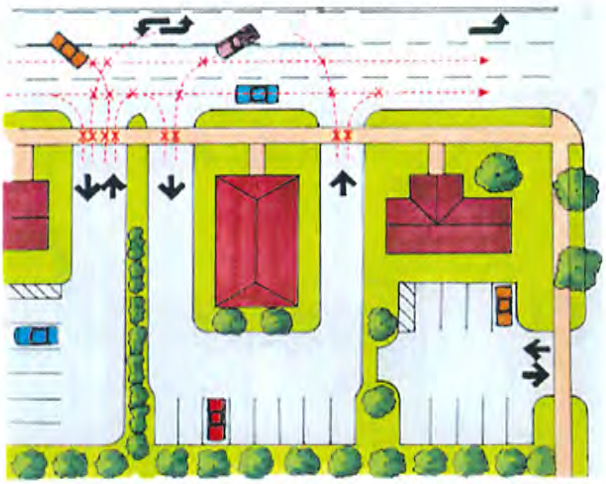
- Amenia
- North East
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives: Access Management is a tool that addresses the conflict between through traffic and traffic destined to developments abutting a roadway. Access management is important in preserving the transportation function of a roadway.[6] In order for access management to be effective and to ensure consistency among different developments, the program must be enforceable. This can be achieved by integrating the access management tools into the sub-division regulations and site plan review process. At a minimum, the access management tools should be applied to development and redevelopment projects abutting the Route 22 Corridor but they can also be extended to the entire municipality.

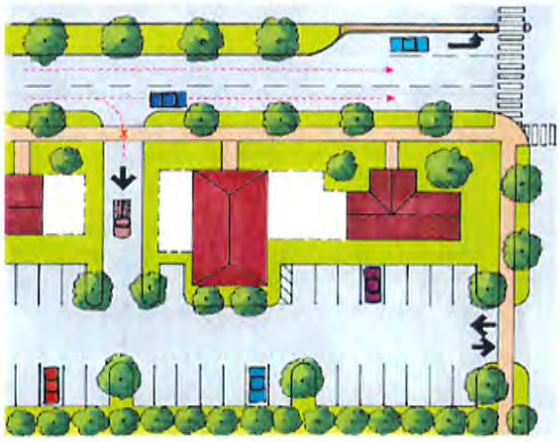
Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	None to Positive

[6] New York State Department of Transportation Corridor Management Group. *Best Practices in Arterial Management*, November 1996.

5.1.1 Shared driveways



Locations: Commercial developments along Route 22 Corridor



Existing Characteristics of Concern and/or Project Objectives: Shared driveways serve two or more abutting properties. The provision of shared driveways reduces the total number of driveways per mile, providing greater driveway spacing and improving the management of entering and exiting traffic. It improves traffic flow on the main roadway and reduces the potential for accidents. Provision of shared driveways is most effective and uniformly applied if enacted by local law such as an overlay zone. An example of this approach has been implemented by the Town of Penfield, New York through their Land-Use and Access Management Plan.[7]

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[7] New York State Department of Transportation Corridor Management Group. *Best Practices in Arterial Management*, November 1996, p. 28.

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use, Environmental

5.1.2 **Provide internal parking lot connections or shared parking lots**

Locations: Commercial developments along Route 22 Corridor

Existing Characteristics of Concern and/or Project Objectives: Internal parking lot connections (also depicted in the image of Shared Driveways above) allow vehicles to move from one development to another without having to enter the main roadway. This approach reduces the volume of traffic on the main roadway and the number of turning movements.

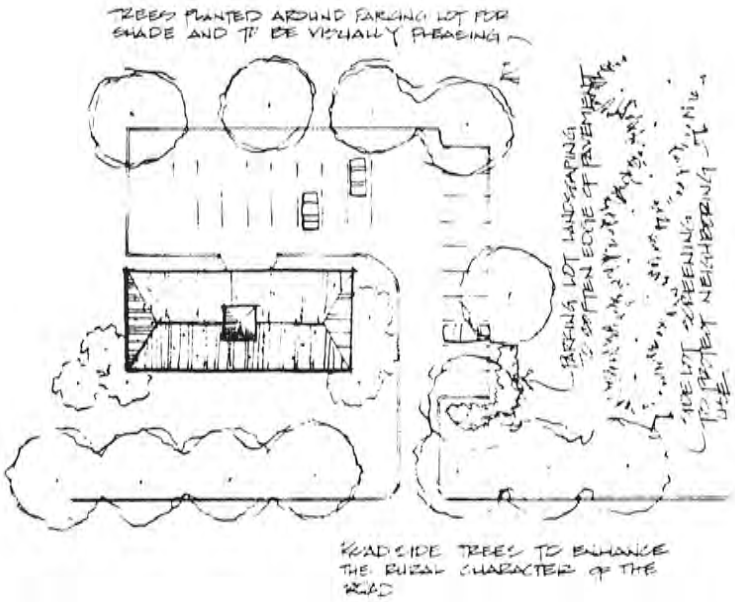
Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use, Environmental
Progress through:	Access Management

Drawing reprinted with permission from: Dealing with Change in the Connecticut

5.1.3 Establish parking on the side or rear of a facility.

Locations: Commercial developments along Route 22 Corridor

Existing Characteristics of Concern and/or Project Objectives:



Parking provided to the side and rear of buildings provides significant transportation and visual benefits. It allows buildings to be located close to the street edge, replicating a historic village or hamlet pattern. It allows the building to provide a visual buffer between the lot and the street. It provides for separation of pedestrian and vehicular activity. It also reduces the potential impact on the adjacent roadway by providing adequate circulation and storage internal to the site.

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social Land Use
Progress through:	Access Management

5.1.4 Increase Corner sight distance.

Locations: Intersections throughout the corridor with identified sight distance deficiencies.

Existing Characteristics of Concern and/or Project Objectives: Adequate sight distance should be provided on all intersection approaches, to reduce the potential for accidents. Sight distance should permit a vehicle on the minor leg of the intersection to cross the major road without requiring the through traffic to slow down. Where necessary steep slopes should be flattened and horizontal and vertical curves lengthened to provide additional sight distance. Where these approaches are not feasible, advance warning signs or speed reductions should be considered.

Probable Cost:	Low
Estimated Technical Requirements	Average
Potential Environmental Impacts:	Environmental
Progress through:	Safety Improvements

5.1.5 Increase driveway setback from intersections.

Locations:

- Pawling
- Village of Pawling
- Dover
- Amenia
- North East
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives: The location and design of corner properties has a direct effect on the capacity, efficiency and safety of the adjacent intersection.

The communities within the study area use zoning regulations to enforce driveway setback from intersections. Existing zoning regulations typically define that "no driveway center line shall intersect a street line less than seventy (70) feet from an intersection." Seventy-feet is only adequate to accommodate three vehicles and in some cases only one tractor trailer. To reduce conflict points at major intersections, driveway setbacks should be increased to between 200 to 250-feet for full access of all movements. Setbacks for driveways with partial access (right-in/right-out only) can be reduced to 100-feet. For properties that cannot meet the minimum standards, driveways should be located as far as possible from the intersection and turn restrictions applied (right-in/right-out only).[8]

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Traffic, Social/Land Use

[8] New York State Department of Transportation Corridor Management Group. *Best Practices in Arterial Management*, November 1996.

5.2 Modify zoning to provide a Limited Access Overlay Zone, which limits the number of driveways per mile through driveway spacing standards.

Locations:

- Pawling
- Dover
- Amenia
- North East

Existing Characteristics of Concern and/or Project Objectives: These overlay zones would be designated on the official transportation and comprehensive plans. Applications for subdivision and site plan review would need to comply with the overlay zone requirements. NYSDOT will also receive copies of the overlay zone locations and requirements so that it will conform to these guidelines in issuing driveway permits.

Multiple

Limited driveways

"Highways with more than 10 uncontrolled access points per side per mile or on which turning movements are expected to frequently interfere with through-traffic are considered 'suburban.' Those with fewer access points or minor access movements are considered 'rural' sections."[9] The intent of this tool is to maintain less than 10 uncontrolled access points per side per mile in rural sections between growth areas or a driveway spacing of approximately 550-feet. An

[9] Institute of Transportation Engineers, Transportation Planning Handbook

example of a model access management regulation is available from the Cape Cod Commission's Model Bylaws and Regulations Project (http://www.vsa.cape.com/~cccom/bylaws/access.html).

Probable Cost: Low

Estimated Technical Requirements: Average

Potential Environmental Impacts: Social/Land Use, Cost

6.0 Signage

6.1 Signage Design Guidelines.

Locations:

- Village of Pawling
- Wingdale—Former Harlem Valley Psychiatric Center
- Dover Plains
- Former Wassaic Developmental Center
- Amenia
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives: Signage is a very apparent depiction of community character. Signage guidelines are enacted to improve the visual appearance of communities. The type, size, and location of a sign can be determined by a zoning ordinance, but the material, colors, and design are generally controlled by guidelines. It is generally recommended that different guidelines be developed for

highway commercial development and commercial districts in villages or hamlets. A copy of a comprehensive model signage bylaw is provided in the Lincoln Institute of Land Policy and Environmental Law Foundation publication, *Dealing with Change in the Connecticut River Valley: A Design Manual for Conservation and Development.* Another model ordinance is contained in Planning Advisory Service (PAS) Report No. 419, *Sign Regulations for Small and Midsize Communities.*

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use

6.2 Develop a Harlem Valley Signage Plan.

Locations:

- Pawling
- Village of Pawling
- Dover
- Amenia
- North East
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives: This strategy differs from the guidelines presented above in that it is specific to Route 22 and would be developed to comply with NYSDOT regulations.

In 1965, President Lyndon B. Johnson signed the Highway Beautification Act, whose intent was to provide the necessary control of signs along the interstate and primary highway systems to protect the public

investment, promote safety, and preserve the beauty of the highways. Federal legislation provides a 10 percent penalty in Federal Highway Administration funding to states that do not develop or enforce rules and regulations controlling roadside signage. The New York State Sign Program, based on Section 52, 86, and 88 of the State Highway Law, fulfills the federal legislative requirements. Within New York State, several parkways have additional signage restrictions due to their unique nature and circumstances. For roads within the Catskill and Adirondack parks, the Department of Environmental Conservation assists NYSDOT in determining specifications and the approval of signs.[10] The intent of this potential tool is to set up similar oversight of Route 22 signage within the Harlem Valley, so that the signs installed are consistent with the community character and values.

Property and business owners within the study area are often unaware of or misinterpret the current New York State Sign Program. This tool would establish guidelines for the Harlem Valley that are more structured and consistent with the character of the region. Similar to the NYS Department of Environmental Conservation Regulations Part 195 (Permits for the Erection and Maintenance of Signs, Advertising Structures, and Devices in the Adirondack and Catskill parks), the Harlem Valley guidelines would specify construction materials, design,

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[10] New York State Department of Transportation. *Part 150: Advertising Sign Adjacent to the Interstate and Primary Highway Systems.*

color combinations, and text for authorized signs. For more details on Part 195, see http://www.dec.state.ny.us/website/regs/195.htm.
The intent of this tool is to have a Harlem Valley Signage Sign pre-approved by NYSDOT. Applications for the erection of new signs would then be directed to a designated local agency, which would issue an approval.

Probable Cost:	Low to Moderate
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Positive

7.0 PEDESTRIAN/BICYCLE SAFETY AND MOBILITY

7.1 Provide sidewalks in growth areas within a 0.5 mile radius.

Locations:

- Village of Pawling
- Wingdale—Former Harlem Valley Psychiatric Center
- Dover Plains
- Former Wassaic Developmental Center
- Amenia
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives:

"Sidewalks are an essential element of a pedestrian-friendly village, yet

one that many villages lack."[11] Sidewalks are an important factor in enhancing safety and encouraging walking as a primary mode of transportation. The development of a sidewalk system in priority growth areas should be achieved through a variety of measures including:

- requiring construction with new development and redevelopment of existing parcels,
- incorporating sidewalk construction into roadway improvement projects, and
- an annual program of sidewalk construction focusing on a limited amount of land acquisition and construction each year.

Probable Cost:	Moderate to High
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Traffic, Social/Land Use, Environmental

[11] Sutro, Suzanne, AICP. *Planning Advisory Service Report Number 430—Reinventing the Village*. Chicago, IL: American Planning Association, December, 1990.

7.2 Village Traffic Calming

Locations:

- Village of Pawling
- Wingdale—Former Harlem Valley Psychiatric Center
- Dover Plains
- Former Wassaic Developmental Center
- Amenia
- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives: Traffic calming is a combination of physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users. Traffic calming is used to reduce vehicle speed, mitigate cut-through traffic, increase safety and improve aesthetics. To achieve these different objectives there area a variety of traffic calming tools that fall into the following general categories:

- Enforcement
- Signing and Marking
- Geometric Changes
- Streetscape Improvements
- Education

The various tools have both advantages and disadvantages that need to be identified and considered as part of an overall traffic calming pro-

gram for each area. Many traffic calming tools, particularly those with raised features, are inappropriate for high volume or high speed areas and should only be considered for local streets. Some examples of traffic calming measures that should be considered include:

- On-street parking
- Gateway treatments
- Special pavement treatments
- Pedestrian signage
- Modern roundabout
- Raised crosswalks
- Neckdowns (curb extensions at corners)

Probable Cost:	Low to Moderate
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Negligible

7.3 Pedestrian/bicycle connections in key locations.

Existing Characteristics of Concern and/or Project Objectives:

"Increased levels of bicycling and walking transportation would result in significant benefits in terms of health and physical fitness, the environment and transportation-related effects."[12] Pedestrian and bicycle facilities offer an alternative for those who are unable or choose not to a drive a vehicle.

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[12] U.S. Department of Transportation Federal Highway Administration, The National Bicycling and Walking Study Transportation Choices for a Changing America, Publication No. FHWA-PD-94-023, Washington D.C.

7.3.1 Dover Plains to Tally Ho Mobile Home Park, Dover

Existing Characteristics of Concern and/or Project Objectives: Provide access to the hamlet from commercial and residential developments to the north along Route 22.

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Traffic, Social/Land Use, Environmental

7.3.2 Amenia hamlet north to Maplebrook School, Amenia

Existing Characteristics of Concern and/or Project Objectives: Provide safe facilities with access to the school from the concentrated development in the hamlet.

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Traffic, Social/Land Use, Environmental

7.4 Bicycle connections in key locations

7.4.1 Route 22 at CR 67 (Quaker Hill Rd.) to Pawling Metro-North RR Station via Main St., Pawling

Existing Characteristics of Concern and/or Project Objectives:
Provide for intermodal transportation connections by linking the existing bicycle route on Route 22 at CR 67 (Quaker Hill Road) to the Pawling Metro-North Station via Main Street.

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Traffic, Social/Land Use, Environmental

7.4.2 CR 4 (Poplar Hill Road) to Tenmile River Metro-North RR Station via CR 5 (Sinpatch Road), Amenia

Existing Characteristics of Concern and/or Project Objectives:
Provide for intermodal transportation connections by linking the existing bicycle route on CR 4 (Poplar Hill Road) to the Tenmile River Metro-North Station via CR 5 (Sinpatch Road).

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Traffic, Social/Land Use, Environmental

7.4.3 **Route 343 to HVRT along Mechanic Street, Amenia**

Existing Characteristics of Concern and/or Project Objectives: Improve access to the Harlem Valley Rail Trail (HVRT) by providing accommodations for bicycles on Mechanic Street from Route 343 to the HVRT.

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Traffic, Social/Land Use, Environmental

APPENDIX B. ELIMINATED STRATEGIES

GROWTH IN DEFINED AREAS

All strategies in this category were progressed to the second stage of evaluation.

OPEN SPACE PRESERVATION

1. **Modify zoning to provide an optional cluster bylaw provision.**

   Location:

   - Amenia

   Existing Characteristics of Concern and/or Project Objectives: This provision maintains the underlying zoning ratio of housing units per acre but groups the housing units on undersized lots to preserve open space or farmland. A major advantage of clustering is that it can be used to set back and screen development from the roads, thereby providing the appearance of open space as development proceeds.

   A cluster bylaw provision protects a growth area from sprawl development resulting from standard subdivisions or strip commercial development. It also supports the maintenance of rural character outside the growth areas. This is already a provision in the zoning code for Dover and North East and is encouraged by the Pawling Planning Board. The primary concern expressed regarding this alternative is that clustering is considered optional and, although the Town might encourage it, there

is no assurance that clustering will occur and that open space will be maintained.

Reason for Elimination: An optional provision does not provide for consistency among developers or over time as the planning board members change.

2. **Institute right-to-farm legislation.**

Locations:

- Amenia
- North East

Existing Characteristics of Concern and/or Project Objectives: Right-to-farm laws are local legislation that limits anti-farm lawsuits. Adjacent neighbors who wish to restrict normal farm practices such as the use of pesticides or fertilizers typically initiate anti-farm lawsuits. As the character of the northern study area changes from a rural/agricultural landscape to a mixture of agricultural and residential, conflicts may occur between neighbors without specific right-to-farm legislation.

Reason for Elimination: Did not receive significant support in the public arena.

3. **Farmland tax relief.**

Locations:

- Amenia
- North East

Existing Characteristics of Concern and/or Project Objectives: At a minimum, this would include assessment of farm buildings at their depreciation value rather than their replacement value, currently a legal option for towns. Consideration should also be given to the home site assessment process. The home site assessment should not include a 5-acre residential zone if only 1 acre is used for the house and associated grounds, with the remaining acreage used for active farming. More aggressive programs, such as those developed in New England,[1] would require state enabling legislation.

If this strategy were used, towns would experience a loss in tax revenue. Unless state or county funds were used to reimburse towns, they would have to compensate through increased property taxes. Currently, no state enabling legislation exists that would allow local communities to reassess their agricultural lands or give tax abatements to relieve pressure on farmers.[2] Such legislation would be a positive step towards farmland preservation.

Reason for Elimination: Received inadequate support or negative feedback in the public arena.

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[1] Schnidman, Frank, Michael Smiley, and Eric G. Woodbury. *Retention of Land for Agriculture: Policy, Practice and Potential in New England*. Cambridge, Massachusetts: Lincoln Institute of Land Policy, 1990.

[2] *Town of North East Comprehensive Plan.*

4. **Fee-simple acquisition is an exclusive interest in the land.**

Locations:

- Pawling
- Dover
- Amenia
- North East

Existing Characteristics of Concern and/or Project Objectives: This is the most widely used land conservation technique. Dutchess County's Open Space and Farmland Protection Matching Grant program provides up to 50 percent matching grants for open space and farmland protection.

Although this approach results in permanent protection of the land and ensures public control and access, there are several disadvantages. Of primary concern is the expense. Even with matching grants and "bargain sales," communities would only be able to acquire limited areas. Subsequent to acquisition, the responsibility of maintenance and management is also expensive and time-consuming.

Reason for Elimination: Expense and negative feedback in the public arena.

5. **Purchase of development rights.**

Locations:

- Pawling
- Dover
- Amenia

- North East

Existing Characteristics of Concern and/or Project Objectives: This technique involves acquisition of development rights or conservation restrictions. This approach generally costs less than fee-simple acquisition. In some cases, wealthy private owners may be willing to donate these interests, particularly where public access is not involved but tax advantages are. Under this approach, management may also remain with the owner, limiting the costs and management requirements of the town. The disadvantages of this approach include potential future misunderstandings between the owner of the easement and second- or third-generation landowners. Another drawback is lack of a provision for public access.

Reason for Elimination: Negative feedback and concern for devaluation of farmland.

6. **Change some of the existing residential large-lot zoning to agricultural zoning.**

Locations:

- Amenia
- North East

Existing Characteristics of Concern and/or Project Objectives: Typically, large-lot zoning discourages non-farm uses in agricultural areas. However, the typical minimum lot size of 3 to 5 acres, which is inadequate to discourage suburban sprawl and is therefore ineffective in preserving farmland.

Reason for Elimination: Did not receive significant support in the public arena.

TRANSPORTATION SYSTEMS MANAGEMENT

7. **Short-term Capacity Improvements.**

Locations:

- Wheeler Road/HVPC, Dover
- CR 21 (Pleasant Ridge Road), Dover

Existing Characteristics of Concern and/or Project Objectives: These intersections were initially identified as having potential capacity concerns in the future as traffic volumes within the Route 22 corridor increase. Adjustments to signal timing and/or phasing could address these capacity concerns and improve traffic flow.

Reason for Elimination: The CPTF eliminated these intersections from further consideration due to greater concern for capacity issues at other locations. Routine maintenance and adjustment of these signals by NYSDOT maintenance forces may adequately address future capacity concerns.

8. **Safety Improvements: Intersections with Route 22.**

Locations:

- Corbin Road (Old Route 22), Pawling
- River Road, Pawling
- Hurds Corners Road, Pawling
- Cart Road, Dover
- Route 343 (south intersection), Dover

- Wassaic Metro-North Train Station, Amenia
- CR 58 (Coleman Station Road), North East
- CR 5 (Smithfield Road), North East

Existing Characteristics of Concern and/or Project Objectives: These intersections were initially identified by the CPTF and/or the public as having a perceived accident problem.

Reason for Elimination: Upon review of the list of intersections that have safety issues, the CPTF eliminated these intersections from further consideration due to greater concern for safety issues at other locations.

MANAGEMENT TOOLS

9. **Establish a Transportation Development District (TDD) and assess impact fees.**

Location: Route 22 within the Harlem Valley

Existing Characteristics of Concern and/or Project Objectives:

The TDD is a special assessment district that provides taxing authority to raise funds for transportation improvements. Impact fees are a method to transfer the capital cost of an improvement to property owners or developers. Fees can be in the form of an exaction (one-time only), sponsorship of a transportation program, or improvements to facilities directly affected by the development.[3] TDDs have been used

[3] New York State Department of Transportation. *Public-Private Financing of Road Improvements Handbook.*

elsewhere in New York to fund major transportation projects, to raise the local share for improvements to a state highway, or to implement mitigation required for new development. Special assessment districts must be individually approved by the New York State legislature. This tool is very forward-thinking and encourages communities to plan for growth rather than reacting to uncontrolled growth. "Impact fees must be structured so that growth is controlled but not prohibited. The fee rates must be reasonable in such a way that they cannot be challenged as taking property without due process."[4] An example of a model impact fee bylaw is available from the Cape Cod Commission's Model Bylaws and Regulations Project (http://www.vsa.cape.com/~cccom/bylaws/impactfee.html).

Reason for Elimination: Requires State legislation for implementation and may have an impact on the development potential.

10. **Institute a process to require developer-paid professional services, including planning, engineering, legal, and clerical costs.**

Locations:

- Pawling
- Dover
- Amenia
- North East

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[4] Ibid.

- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives: In connection with an application to the Planning or Zoning Board, the applicant would be required to deposit funds in an escrow account to cover the cost of professional review services. This removes the cost of review from the general community and ensures that appropriate technical experts assist the community in the review process. An example of this requirement is provided in the Village of Pawling Zoning Code §98-54 Fees.

Reason for Elimination: Received inadequate support.

11. Develop a process for regional impact assessment.

Location: Route 22 within the Harlem Valley

Existing Characteristics of Concern and/or Project Objectives: Certain development projects, due to their size, location, or character, affect more than one community.

Reason for Elimination: The Harlem Valley Partnership currently fulfills this role.

12. Performance evaluation.

Locations:

- Pawling
- Village of Pawling
- Dover
- Amenia
- North East

- Village of Millerton

Existing Characteristics of Concern and/or Project Objectives: The Village of Pawling Zoning Code §98-20 Performance Standards includes a section to "regulate and control the generation and flow of vehicular traffic so as to prevent hazardous conditions, traffic congestion and excessive noise in the streets." These performance standards, although an excellent first step, are vague and open to multiple interpretations. It would be more appropriate to specifically identify an acceptable Level of Service and require developer mitigation whenever a development causes an intersection approach to drop below that standard or adds 10 percent additional traffic to an approach already below the standard.

Reason for Elimination: Not as high a priority as other tools.

ACCESS MANAGEMENT

13. Landscape commercial space.

Location: Harlem Valley

Existing Characteristics of Concern and/or Project Objectives: Landscaping in and around commercial developments provides a visual buffer from roadside development, helping to maintain the rural character of the area. "Municipalities should require landscaping performance bonds of developers to ensure that site plan specifications are adhered to and to ensure replacement should plants fail to survive."[5]

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[5] Roadscape Guidelines, Dutchess Roadside Council

Reason for Elimination: Most of the municipalities require some form of landscaping through zoning and/or site plan review.

14. Provide climbing lanes.

Locations:

- Route 22 between Dover High School and East Duncan Hill Road
- Route 22 near crossing of the Swamp River

Existing Characteristics of Concern and/or Project Objectives: Route 22 is part of the Primary Highway System, designated by the federal government, and as such serves an important function of providing through-travel and access for tractor-trailers and other heavy vehicles like gravel trucks. Heavy vehicles can contribute to congestion and driver frustration particularly when they are unable to maintain speeds on steep grades. These issues are exacerbated on rural roads, like Route 22, which has narrow lanes and limited shoulder availability.

Reason for Elimination: Widening the road to accommodate a full climbing lane is counterintuitive to the desired goal of maintaining rural character. Accommodation of heavy vehicles, through a provision of adequate shoulders, is included in the cross-sections proposed in the Harlem Valley Transportation Plan.

15. **Establish a Local Access Permit Program that enforces more stringent access standards than NYSDOT.**

Locations:

- Pawling
- Dover
- Amenia
- North East

Existing Characteristics of Concern and/or Project Objectives: The local access permit process should address all access management issues including driveway spacing and dimensions, number of driveways, shared/ joint driveways, approach grades, turning radius, surfacing materials, drainage requirements, sight distance, and pedestrian/bicycle access. The process would be in addition to the State process, not in lieu of it. Existing non-conforming uses will be reevaluated when a permit is requested for a new driveway or a change in use or intensity is proposed. Local access management would apply to all roads within the community.

Reason for Elimination: Due to staff and budget constraints at the municipal level that it is batter to address driveway spacing and access management through a Limited Access Overlay District and incorporating Access Management strategies into the site plan review and subdivision regulations.

SIGNAGE GUIDELINES/WAYFINDING

All strategies in this category were progressed to the second stage of evaluation.

PEDESTRIAN/BICYCLE SAFETY/MOBILITY

All strategies in this category were progressed to the second stage of evaluation.

SAFETY

16. Education Programs.

Location:

- Route 22 Corridor

Existing Characteristics of Concern and/or Project Objectives: Education programs are implemented to:

- Remind community of traffic laws,
- Make driver's aware of pedestrian safety issues,
- Make drivers aware of speeding violations, and
- Educate drivers on traffic calming devices and identify proposed locations within villages and hamlets.

Education/safety campaigns can be instituted through flyers, newsletters, newspaper articles, and exhibits in public spaces such as Town Hall, libraries and local fairs.

Reason for Elimination: Education programs are labor intensive, which would place a strain on the communities within the study area. In

addition, these programs are not self-enforcing and there is limited documentation of their effectiveness.

17. Signs: events/safety.

Location:

- Varies as needed along the Route 22 Corridor

Existing Characteristics of Concern and/or Project Objectives: Use of variable message signs to inform motorists of special events, alternative routes, safety precautions such as icy roadway conditions, construction activity and recent accidents that may cause congestion.

Reason for Elimination: Permanent variable message signs would impact the rural character of the area. Mobile variable message signs could be used as needed but the NYSDOT has a limited number for use on all its routes.

18. School Safety Program.

Locations: Elementary and secondary schools throughout the corridor.

Existing Characteristics of Concern and/or Project Objectives: Introduce pedestrian and vehicular safety programs within school curriculum. These programs are reminders to young students on the importance of following the rules of the road as both pedestrians and bicyclists and providing safety tips. Examples of program items include how a walk signal works and why they should be used when available and how bicycles and vehicles can share the road. Safety programs for young drivers can also be introduced.

Reason for Elimination: This was not as high a priority as other strategies.

AESTHETICS

19. Establish an Adopt-A-Highway maintenance program, sponsored by the county.

Location:

- Dutchess County

Existing Characteristics of Concern and/or Project Objectives: The program would rely on companies, clubs, and organizations to show their commitment to the region by "adopting" a stretch of Route 22.The intent of this tool is to promote interest in and support for maintaining a pleasant driving environment on Route 22 and therefore promoting additional investment and tourism. This program would be modeled after the existing Adopt-A-Highway and Monroe County in Bloom programs in Monroe County, New York. A volunteer group would commit to maintaining a segment of highway for a two-year period. Work would include raking and picking up trash. The work would also include seasonal planting of flowers, weeding, and watering. The County would provide the garbage bags, safety vests, "Work Zone" signs, and roadside trash pick-up service. The County would also provide seasonal flowers and landscape design. An Adopt-A-Highway program coordinator would visit the volunteer group to provide training in maintenance and highway safety.

Reason for Elimination: This was not as high a priority as other strategies. The NYSDOT currently operates an Adopt-a-Highway

Program, which provides for trash pick-up but does not provide seasonal flowers or landscape design.

20. **Scenic byways/roads program**.

Locations:

- Selected sections of Route 22

Existing Characteristics of Concern and/or Project Objectives:

Scenic roads or byways are a designation that helps to preserve and protect the scenic beauty and character of a rural roadway. "State Scenic Byways are transportation corridors that are of particular statewide interest. They are representative of a region's scenic, recreational, cultural, natural, historic or archaeological significance. A byway is organized around at least one theme. A theme is based on related resources that are located along the byway corridor. These resources can be things like landmarks, buildings, mountains, vistas, businesses, parks, historical sites. . . nearly anything of interest or value than is visible from, adjacent to, accessed by or associated with the road. Attracting tourism is often one of the reasons that byway designations are sought. Some planning is necessary to make sure that the byway benefits both the community and its visitors."[6] Existing Scenic Roads in Dutchess County include:

- County Route 103 (13.2 miles),
- Kingston-Rhinecliff Bridge (1.4 miles),
- Mid-Hudson Bridge (0.6 miles),
- State Route 9 (2.3 miles),

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[6] http://www.dot.state.ny.us/scenic/descript.html

- Norrie State Park Roads (1.6 miles),
- Old Post Road/Golf Course Road (2.6 miles),
- Santage Road (0.6 miles), and
- Stony Brook Street (0.7 miles)

Reason for Elimination: Not as high a priority as other tools. Many of the techniques that would be used by local communities to implement the program, such as access management, streetscape improvements and signage regulations are being recommended for implementation through the Route 22 Corridor Study.

21. **Scenic overlooks**.

Locations:

- Selected scenic vistas on Route 22

Existing Characteristics of Concern and/or Project Objectives: Scenic overlooks provide an opportunity to allow drivers to stop, explore and enjoy the natural beauty of the surrounding landscape. Properly designed pull-offs provide for safe egress from the highway and maintain through traffic flow.

Reason for Elimination: Did not receive significant support in the public arena. Specific locations, on Route 22, were not identified through public and advisory committee meetings. There would also be long-term maintenance costs associated with upkeep of the pull-off area.

PUBLIC TRANSPORTATION

22. North-south LOOP service.

Locations:

- Route 22 Corridor

Existing Characteristics of Concern and/or Project Objectives: The current LOOP bus schedules serving the area are primarily east-west routes, with service to and from Poughkeepsie. Service along Route 22 is provided by LOOP Routes 8, 9, and 10—although it is limited and does not extend south of Pawling.

Reason for Elimination: Dutchess County is examining the possibility of Route 22 bus service between Wingdale/Pawling and Brewster (Putnam County). The service would connect with Metro-North at Brewster, PART (Putnam Transit and HART (Housatonic Area Transit). The service would accommodate peak hour commuting activity to serve businesses along the Route 22 corridor.

23. Subsidized shared ride taxi shuttle service.

Locations:

- Metro-North Railroad Stations
- Pawling Station
- Harlem Valley-Wingdale Station
- Dover Plains Station
- Tenmile River Station
- Wassaic Station

Existing Characteristics of Concern and/or Project Objectives: The intent of this strategy is to use taxi shuttles with subsidized fares to complement existing transit service. Taxi shuttles increase choices, efficiency and public value for public transportation by providing a more extensive fixed route system using smaller vehicles. The service provides a connection between fixed route transit operations and remote residential areas. Riders are attracted by curbside level of service while improving fixed route accessibility for seniors and disabled. This program could be implemented through a partnership between Metro-North and a local taxi service of a partnership with the County and a local taxi service. Initial program development could be limited to one vehicle per station for 8-10 hours of peak service.[7]

Reason for Elimination: This was not as high a priority as other strategies.

24. Dial-a-ride bus service.

Locations:

- Route 22 Corridor

Existing Characteristics of Concern and/or Project Objectives: Transit demand in rural areas is often too small or too dispersed to justify fixed route service. An alternative strategy is to provide a demand-responsive system, minimizing vehicles miles and vehicle hours of service. Dial-a-ride uses vans to offer door-to-door service based on a 4-hour advance schedule by telephone. Unlike the shared taxi service this would be

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[7] Wambalaba, Francis W., *Private/Public Shuttle Service Opportunities: A System's Approach,* Transportation Research Board 2002 Annual Meeting – Paper Submittal.

operated through the local transit service provider. This service is attractive to the elderly and handicapped that has trouble accessing fixed route service.

Reason for Elimination: This was not as high a priority as other strategies.

25. Convenience/tourist retail.

Locations:

- Adjacent to Metro-North Railroad Stations.
- Tenmile River Station
- Wassaic Station

Existing Characteristics of Concern and/or Project Objectives: The intent of this strategy is to provide transit-oriented development adjacent to railroad stations to provide convenience services for riders and reduce vehicle trips in the corridor. Retail services would potentially include dry cleaners, bank services, coffee shops, and bike rental facilities.

Reason for Elimination: There is a concern that this type of development would compete with existing and future retail activity in the designated growth areas.

TRAVEL DEMAND MANAGEMENT

As development in the Harlem Valley grows, increasing demands will be placed on the roadway system. A growing awareness of environmental impacts, the expense of roadway construction, and community opposition to intrusions on their quality of life and the rural character of the area, have made it increasingly clear that traffic congestion can no longer be abated by building one's way out. Alternative strategies include Travel Demand Management (TDM) measures that reduce dependency on the automobile by encouraging travelers to use alternatives to driving alone, especially during peak time periods. The following TDM measures encourage the use of public transportation, ridesharing, bicycling, and walking.

26. Park-&-ride lots.

Locations: Select locations along Route 22 by taking advantage of partnerships with private businesses that have underutilized parking facilities.

Existing Characteristics of Concern and/or Project Objectives: Park-&-Ride lots provide an opportunity for residents, especially in rural, dispersed communities, to have a convenient and central location to meet and complete the remainder of their commuting trip by carpooling. This reduces the volume of traffic and associated congestion on Route 22.

Reason for Elimination: This was not as high a priority as other strategies and there was concern that the corridor lacked adequate demand to make the approach successful.

27. Carpool matches.

Locations: Local businesses along the Route 22 Corridor.

Existing Characteristics of Concern and/or Project Objectives: Communities would encourage new and existing businesses to help employees find potential matches for carpooling. This can be accomplished by providing employees with a list of co-workers who live within a short distance of their home. It is then left to the employees to establish a carpool arrangement. Additional carpool incentives by the employer, such as priority parking spaces, will further support this strategy.

Reason for Elimination: This was not as high a priority as other strategies and there was concern that the corridor lacked adequate demand to make the approach successful.

28. Commuter shuttles.

Locations: Local businesses along the Route 22 Corridor.

Existing Characteristics of Concern and/or Project Objectives: Communities would encourage new and existing businesses to provide employees with a shuttle service between the place of business and fixed transit routes.

Reason for Elimination: This can be a costly service unless demand is very high or several businesses share the cost. At this time there is insufficient density along the corridor and inadequate transit demand for this service.

29. Flexible hours.

Locations: Local businesses along the Route 22 Corridor.

Existing Characteristics of Concern and/or Project Objectives: Communities would encourage new and existing businesses to allow their employees to work flexible hours, reducing the number of employees arriving or departing during peak commuter periods. This strategy reduces peak hour traffic volumes and associated congestion.

Reason for Elimination: This was not as high a priority as other strategies.

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Appendix C. Implementation of Strategies

Some of the communities in the Route 22 Corridor use methods other than their master plan, zoning, and subdivision regulations to implement some of the strategies described in Section 3. The communities and the regulation or process they use are listed here. The Corridor Management Plan recommends that some of these processes be formalized to ensure continuity over time.

Town of Pawling

Right to Farm Legislation - Town Code
Farmland Tax Relief - Agriculture Districts are defined by Dutchess County
Purchase of Development Rights - Used on the Deerfield Ponds Development
Land Acquisition through Land Trust - Town encourages this through private entities (Oblong)
Rear/side parking - Site Plan Review
Landscaping - Site Plan Review
Medians - Site Plan Review
Corner sight distance - Site Plan Review
Defined/limited number of driveways - Site Plan Review
Focus on growth areas - pedestrian amenities - Site Plan Review

Town of North East

Rear/side parking - Site Plan Review

Landscaping - Site Plan Review

Developer paid professional services - Fee Schedule

Regional impact assessment – SEQR Process

Shared driveways - Site Plan Review

Corner sight distance - Site Plan Review

Village of Millerton

Rear/side parking - Site Plan Review

Landscaping - Site Plan Review

Developer paid professional services - Fee Schedule

Regional impact assessment - SEQR Process

Shared Driveways - Site Plan Review

Parking lot connections - Site Plan Review

Corner sight distance - Site Plan Review

Landscaping - Site Plan Review

Appendix D.

Level of Service Analysis

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TABLE D-2.
LEVEL OF SERVICE ANALYSIS AND DELAY: UNSIGNALIZED INTERSECTIONS

Intersection	Lane Group	Existing P.M. Peak LOS (Delay)	2020 P.M. Peak LOS (Delay)
Route 22 / Route 55 NB On-ramp		A	B
Route 22 / Route 55 SB On-ramp		A	A
Route 22 / Route 55, Wingdale			
	WB	C (16.4)	D (27.5)
	SB	A (8.5)	A (9.2)
Route 22 / Route 343 South			
	EB	B (13.9)	C (22.0)
	NB	A (8.9)	A (9.2)
Route 22 / Route 343 North			
	EB	C (16.4)	C (22.8)
	NB	A (8.2)	A (8.6)

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