

Final Technical Report
Route 9 Land Use & Transportation Study
Town of Poughkeepsie, New York

Prepared for:



Prepared by:



FITZGERALD & HALLIDAY, INC.

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Final Concept Plan
Final Recommendations Matrix

1 Introduction

1.1 Background Information

Route 9 is a major arterial traversing the western side of the Town of Poughkeepsie, south to north. The study area is home to Marist College, Hudson Heritage (redevelopment of the former Hudson River Psychiatric Center), a retail shopping center (Mid-Hudson Plaza), a regional hospital, a regional passive recreation area (under development), transit routes, and other varied residential, commercial, and public land uses. Pedestrians crossing Route 9 between Marist College and the shopping center have been an on-going concern and were the subject of a 2003 study by the New York State Department of Transportation (NYSDOT)¹. The development of Marist



Congestion on Route 9 near the Mid-Hudson Plaza and Marist College is a concern for residents and commuters.

College facilities on the east side of Route 9 has also contributed to increasing concerns about pedestrians. The section of Route 9 within the study area is generally perceived as highly congested and opinions about the causes of congestion vary. There is a need to balance the desire for a pedestrian-friendly, “village center” environment, as envisioned by the Town’s most recent planning efforts, with the function of Route 9 as a major commuter route while accommodating additional development both within the study area and in neighboring municipalities.

1.2 Study Purpose

The purpose of the study was to develop a shared vision of future land development and transportation, taking into account the development plans of the major stakeholders in the corridor. The study grew out of a concern by the Town of Poughkeepsie, NYSDOT, and Marist College about pedestrian safety, traffic growth, and future development proposals in the vicinity of Route 9. The Poughkeepsie-Dutchess County Transportation Council (PDCTC) was asked to coordinate the project on behalf of the various parties.

Discussions about the project began in 2004 after the completion of the Pedestrian Safety Study. The development of a project scope reflected other activities that were underway in and around this portion of Poughkeepsie.

- Town of Poughkeepsie is developing a new Town Plan that includes concepts for new centers along Route 9, including Fairview. Work on a new Zoning Code is continuing.
- Dutchess County acquired a long-term lease to the riverfront parcel from the former Hudson River Psychiatric Center and intends to develop a new County Park called Quiet Cove.

¹ Route 9 Pedestrian Safety Study (December 2003) New York State Department of Transportation.

- Efforts to establish the Hudson River Greenway Trail are underway in both the Town and City of Poughkeepsie.
- Hudson Heritage acquired a large portion of the former Psychiatric Center and intends to redevelop the property as a mixed-use development to include residential, retail, office, and industrial uses.
- Marist College is developing a campus master plan to help guide its future growth.
- Inland Management acquired the Mid-Hudson Plaza from the original owner.
- CSX decided to abandon underused rail lines in the Town and City of Poughkeepsie, and Dutchess County expressed interest in acquisition.

The PDCTC sought to identify the key stakeholders and include them as part of the Advisory Committee for the project. Ultimately the Advisory Committee included representation and active participation from the following organizations:

- Town of Poughkeepsie
- City of Poughkeepsie
- Dutchess County (Departments of Planning and Public Works)
- NYS Department of Transportation (Region 8)
- NYS Office of Mental Health
- Marist College
- Hudson Heritage LLC
- Inland Management (Mid-Hudson Plaza)

The PDCTC acted as the project manager and enlisted the assistance of Creighton Manning Engineering and Fitzgerald & Halliday as project consultants.

PDCTC and its consultants formally initiated the project in February 2006 with a series of interviews with key stakeholders about projects, plans, and concerns within the study area. There were also facilitated discussions with other agencies, groups, and individuals who have an interest in the future of the Fairview Area. Among those consulted in the process were the Fairview Fire Department, the Hyde Park School District, St. Francis Hospital, Scenic Hudson, and Walkway Over the Hudson.

It quickly became clear the stakeholders were in agreement on some issues and had differing views on others. Despite the differing priorities and interests the Advisory Committee worked diligently to reach agreement on a Concept Plan for Fairview. A major part of the process was identifying the key issues surrounding future development and transportation improvements in this portion of Route 9. By the conclusion of the project, the Advisory Committee had reached consensus on a number of fundamental issues:

Fairview Center Concept – as part of the draft Town Plan, the Fairview Concept should be the guide for new development in the area. There is an understanding that not every item will be implemented as shown, but agreement that it should be the blueprint for the town, developers, and NYSDOT to use in future decisions.

Multi-Modal Connections – develop connections between the various activity centers to include not only auto connections, but also better pedestrian and transit connections to provide options for travel within the area.

Route 9-9G Connector – there is strong support for the concept of a new public road through Hudson Heritage and the remaining state property to provide options for vehicle trips.

Intersection Modifications – examine options for changing location, alignment, function and operation of some of the driveways and intersections to smooth traffic and reduce conflicts.

CSX Corridor – the two branch lines converge at the former Hudson River Psychiatric Center and present interesting opportunities for new road, pedestrian and/or transit connections in the area.

Pedestrian Improvements – a primary concern was enhancing pedestrian safety in the corridor. Support for better connections between Fairview and nearby facilities, especially the Dutchess Rail Trail to the east, Walkway Over the Hudson to the west, the Hudson Valley Greenway Trail along the River, and Quiet Cove.

Public Transit Services – better, more frequent transit service could reduce the number of vehicle trips within Fairview and from this area to nearby destinations such as the train station and shopping malls.

These “consensus issues” formed the basis for most of the recommendations contained in the Concept Plan.

2 Land Use Analysis

2.1 Community Profile

2.1.1 Existing Land Use and Zoning

Land Use

Understanding the direct relationship between land uses and the transportation system was fundamental to this study. As roadways are improved, access to land is increased. This encourages new development to occur, which places more traffic pressure on the roadway system. Eventually those pressures mean new roadway improvements must be considered, creating a cycle. This study explored the specific relationship of land use to Route 9 now and what the potential for land use change is for the future. Information on existing land use was obtained from field mapping, information from the draft Poughkeepsie Town Plan, and data regarding programmed development projects in the study area. This was supplemented through interviews with major stakeholders in the corridor. Information on study area zoning was derived from the existing Poughkeepsie zoning regulations, zoning map, and discussions with the Town Planning office and the consultant working on the Town’s comprehensive zoning update. Table 2.1 summarizes the findings of the existing land use assessment (as of September 2006).

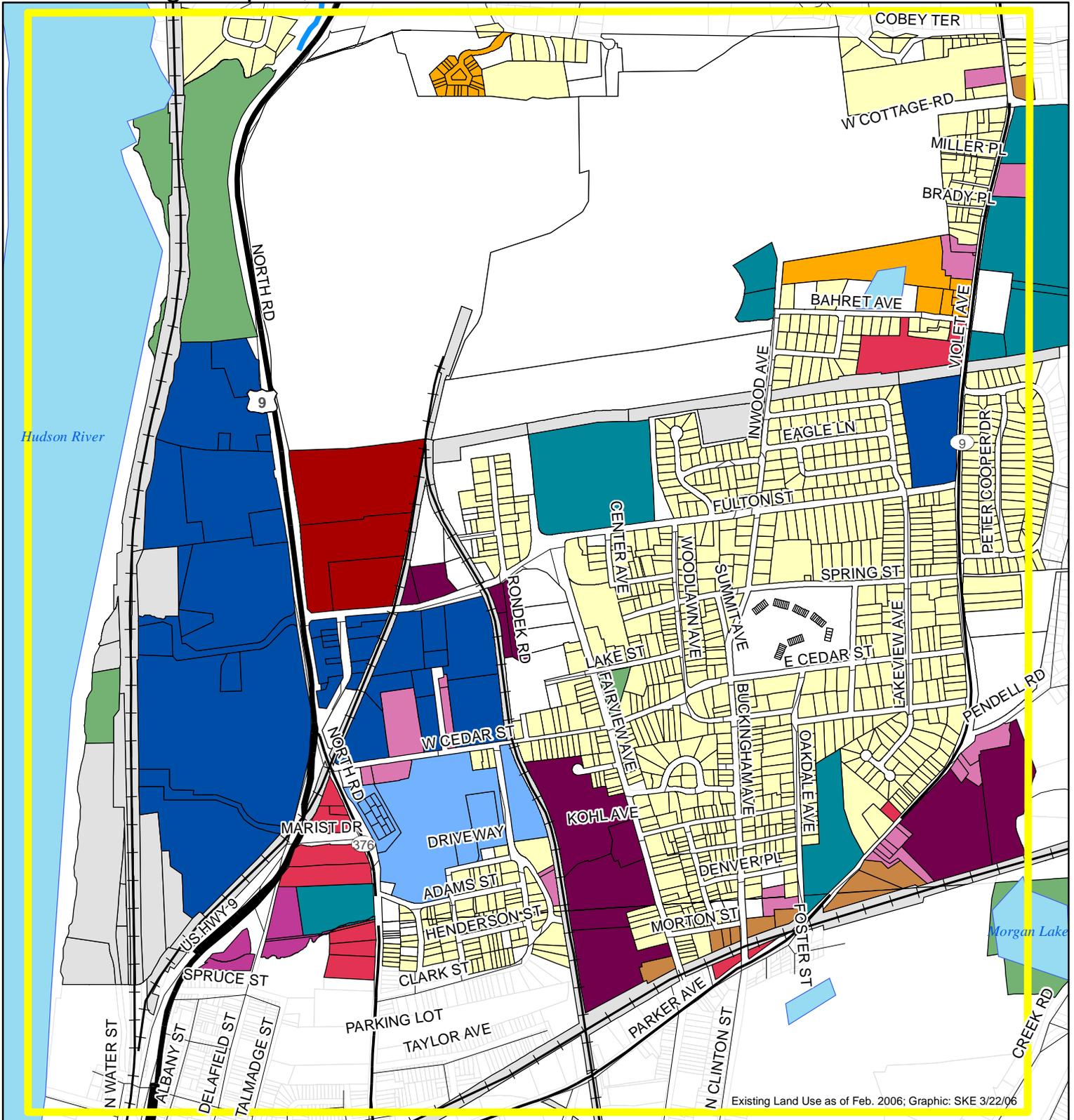
Table 2.1 – Existing Land Uses within the Study Area (as of September 2006)

Use	Acres	Percentage of Total
Vacant/Undeveloped/Redevelopment Opportunities	454	32%
Single Family	309	22%
College/School	168	12%
Utilities	142	10%
Institutional - Other	90	6%
Open Space	64	5%
Industrial	52	4%
Shopping Center	31	2%
Hospital/Medical Services	30	2%
Commercial - Services	19	1%
Multifamily	16	1%
Commercial - General Retail	15	1%
Office	9	1%
Motor Vehicle Sales & Service	4	0%
Total	1,404	

Source: Fitzgerald & Halliday, Inc.

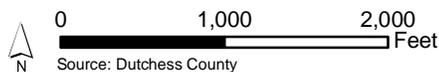
Figure 2.1 shows the existing land uses within the study area.

Route 9 Land Use and Transportation Study Town of Poughkeepsie, NY



- | | | |
|---------------------------|-----------------------------|--|
| Industrial | Commercial - General Retail | Open Space/Recreation |
| Utilities | Commercial - Services | Vacant/Undeveloped/Redevelopment Opportunities |
| College/School | Office | Study Area |
| Hospital/Medical Services | Motor Vehicle Sales/Service | Water Bodies |
| Institutional - Other | Multifamily | Streams |
| Shopping Center | Single Family | |

Existing Land Use
Figure 2.1



Zoning

The study area falls under ten different zoning categories. The largest zoning designation is for single-family residential uses on lots of 10,000 square feet or a quarter acre (R-10) and 20,000 square feet or half-acre (R-20). The location of each zone is shown on the Current Zoning map (Figure 2.2). Table 2.2 below shows the percentage of land within the study area that falls into each zoning category. Descriptions of each zoning designation follow Table 2.2.

Table 2.2 – Existing Zoning Designations

Zone	Acres	Percentage of Total
R-10	534	42.5%
R-20	492	39.1%
I-H	103	8.2%
I-L	33	2.6%
B-SC	31	2.5%
R-M	27	2.2%
B-N	17	1.3%
R-MH	10	0.8%
O-R	9	0.8%
B-H	2	0.2%
Total	1,259	

Source: Fitzgerald & Halliday, Inc.

The following list summarizes the allowable uses in each zone:

B-H: Large scale commercial uses that require highway proximity and automobile access, but which may not typically function as part of a regional shopping center. Permitted uses include auto parts stores, bowling alleys, building materials stores, bookstores, health clubs, and fast-food restaurants. Other permitted uses include business parks, funeral homes, country clubs, golf courses, and hotels or motels.

B-N: Neighborhood scale businesses including bakeries, banks, small restaurants, laundries, offices, personal services, and upper floor dwelling units that are secondary to the ground-floor non-residential use.

B-SC: Large scale multi-community or regional shopping activities.

I-H: Heavy industrial uses located close to arterial roads or limited access highways. Permitted activities include equipment rental or sales yards, dry cleaning works, bulk fuel storage and distribution, trucking terminals, and recycling businesses.

I-L: Light industrial uses located close to arterial roads or limited access highways. Permitted uses include distribution centers, business parks, fraternal clubs, laboratories, municipal buildings, schools including vocational education centers, and public utility structures.

R-10: High-density, single family residential (lots of 10,000 square feet). Permitted uses also include cemeteries, colleges (with dormitories), country clubs, golf courses, schools, hospitals, museums, libraries, parks, and places of religious worship

R-20: Low-density, single family residential (lots of 20,000 square feet). Permitted uses include those allowed in the R-10 district.

R-M: Mixture of multi-unit residential development in structures not exceeding three-stories in height. Permitted uses also include those in the R-10 district, plus nursing homes.

R-MH: Medium-high density residential, including mobile home parks.

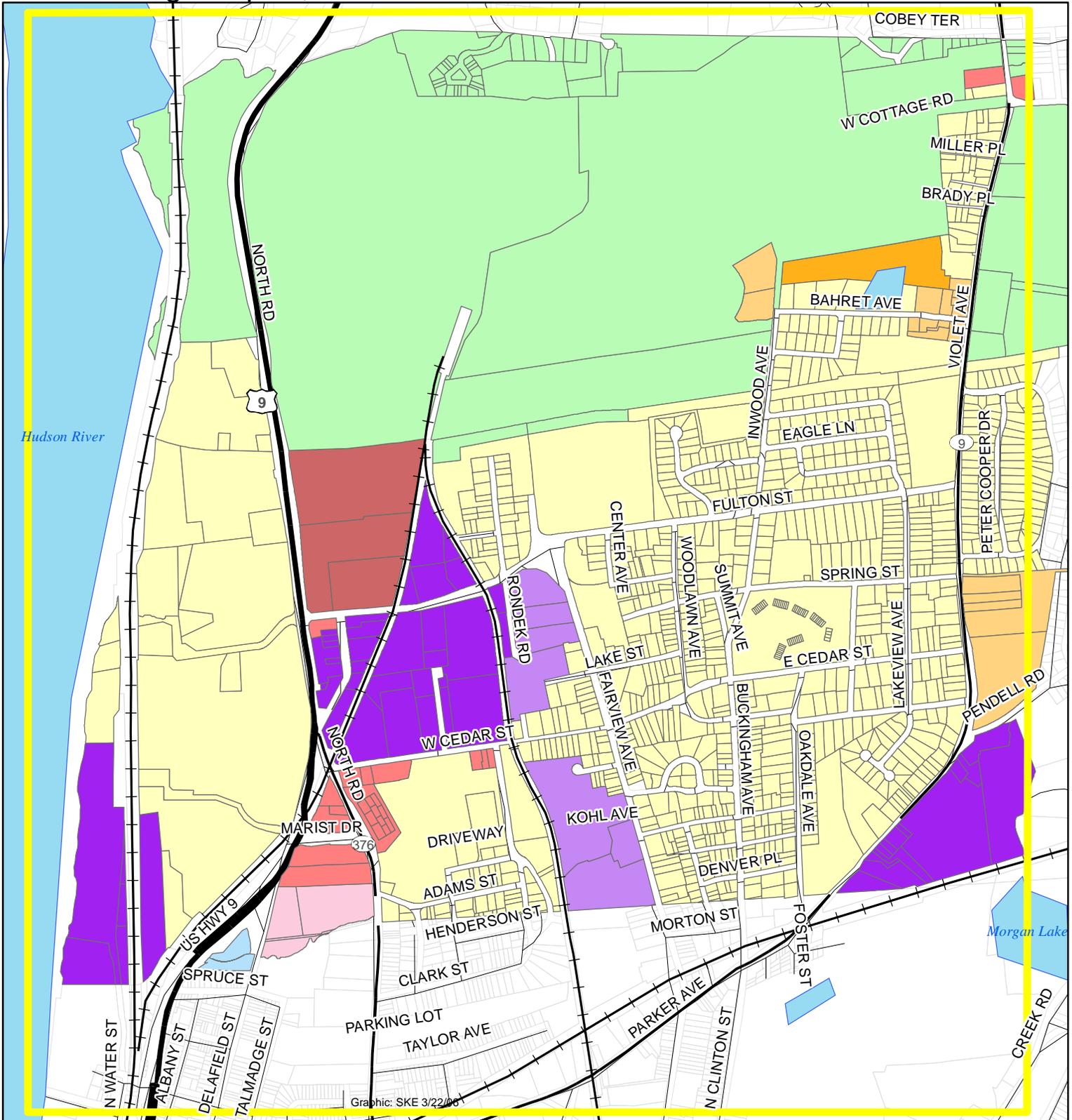
O-R: Office-research/planned uses such as research parks. It is intended to serve as a transition zone between industrial zones/activities and residential neighborhoods. Banks or financial services, health clubs, and colleges are also permitted in this zone.

The Town of Poughkeepsie enacted a nine-month moratorium on the consideration of all development applications. The moratorium was adopted in May 2005 and amended in July 2005, expiring in April 2006. The moratorium was subsequently extended in mid-2006 and will be in effect until April 2007. The moratorium law, known as the *Interim Development Law of the Town of Poughkeepsie*, generally supersedes the zoning regulations and subdivision regulations as they pertain to applications for residential subdivisions of ten lots or more, and associated special permits and site plan approvals, as well as applications, for any multiple family dwellings.

A comprehensive revision to both the subdivision and zoning regulations is currently under way. A draft was completed in December 2006 and is under review. A schedule for formal adoption of the amended zoning regulations has been set for early 2007.

An amendment to the zoning regulations has also been proposed to encompass the properties to be developed on a portion of the former Hudson River Psychiatric Center (HRPC) property. A *Historic Revitalization Development District* would encourage the adaptive reuse and revitalization of historic structures on the property, while allowing a mix of uses including varied housing types, open space, offices, commercial/retail activity, and light industrial uses.

Route 9 Land Use and Transportation Study Town of Poughkeepsie, NY



Current Zoning
Figure 2.2

0 1,000 2,000 Feet
Source: Dutchess County

CME
CREIGHTON MANNING ENGINEERING, LLP

2.1.2 Demographics

Demographic information about a community can provide insight into the potential for future land use change. It reflects residential growth trends, the need for community facilities, and market demand for retail or other business growth. Table 2.3 below provides some basic information about the study area’s population and housing.

Table 2.3 – Comparative Demographic Data: Route 9 Study Area

	Dutchess County	Town of Poughkeepsie	Study Area (Census Tract 1401)
Population			
Total Population	280,150	42,777	6,235
Percent Pop. Change 1990 - 2000	+8.0%	+6.6%	+24.4%
Median Age	36.7	35	21.6
Percent Elderly (65+ Years)	12.0%	12.9%	8.0%
Percent Minority	19.7%	17.0%	18.4%
Income/Employment			
Percent Unemployed	5.7%	6.0%	38.9%*
Median Household Income	\$53,086	\$55,327	\$44,634
Percent Below Poverty	7.5%	5.7%	8.9%
Housing/Households			
Households	106,103	14,605	1,379
Percent Owner Occupied	69.0%	69.8%	74.1%
Percent Renter Occupied	31.0%	30.2%	25.9%
Median Household Size	2.6	2.6	2.6

Source: 2000 U.S. Census

* Marist College resident students represent a high proportion of this number.

Dutchess County ranks as the fifth fastest growing county in New York State, according to U.S. Census Bureau estimates. Much of this growth may be attributed to the area’s proximity to the New York Metropolitan Area, convenient transportation to and from the area, and escalating housing costs in more immediate metro-area communities; the latter encouraging home buyers to look at more distant communities for affordable housing. Since the 2000 Census, the Town of Poughkeepsie has experienced steady growth, increasing 4.2 percent between 2000 and 2003. The Town of Poughkeepsie Planning Department reports a steady stream of applications for residential subdivisions, which indicates that the population growth trend can be expected to continue. Table 2.4 below shows the population projections for the Town of Poughkeepsie through 2025.

Table 2.4 – Town of Poughkeepsie Population Projections

Year	Population
2000	41,800
2005	43,499
2010	44,568
2015	45,940
2020	48,343
2025	50,552

Source: Poughkeepsie-Dutchess County Transportation Council and U.S. Census Bureau

2.2 Land Use Trends in the Study Area²

By the turn of the century, the Fairview area had become home to much of the early industrial development in Poughkeepsie. The area's industrial importance continued until the economic downturn of the late-1980s and early-1990s, when several large, local factories closed. Though unwelcome, these changes led to some redevelopment opportunities for former industrial sites, along with the necessary work of decontaminating associated brownfield sites.

Marist College opened in 1929, representing a significant educational land use in the study area. The College continues to thrive and expand its campus. The College's development on the east side of Route 9 has taken place on land on that was previously occupied by abandoned industrial facilities. Marist College purchased the properties and engaged in a comprehensive environmental clean-up and improvement of the sites. The land on the east side of Route 9 has been used to support the construction of student townhouse complexes with complementary recreation activities and open green space. A central walkway was constructed on the east side to facilitate the movement of students to the west side of campus thereby keeping student traffic off Fulton Street and West Cedar Street. The College's five-year Master Plan calls for enhancements and some new structures on existing campus property, with a central green/landscaped corridor unifying the east and west campus. The College does not anticipate any substantive land acquisition in the future.

The Hudson River Psychiatric Center (HRPC), opened in 1868, is a major State run institution which at its peak housed many thousands of people and whose campus stretched for 3 miles to the east of the Hudson River in the Towns of Poughkeepsie and Hyde Park. Approximately 300 acres of HRPC property falls in the study area. In 2005, the State, as part of a downsizing of HRPC operations, sold 156 acres to a development group. This property (Hudson Heritage) contains over 1.2 million square feet of existing buildings, including the 450,000 sq. ft. Main Building, a National Landmark. This property is expected to be redeveloped for a mixed-use planned development. The NYS Office of Mental Health (OMH) owns the remainder of the HRPC property and will continue to use

² Historical information primarily drawn from Draft Poughkeepsie Town Plan.

portions of it to support a number of existing State Operated Community Residences (SOCRs); OMH may also expand some of its client based services at the site.

From the 1950s through the 1970s, development in the Town spread out into surrounding farmlands and many new residential neighborhoods formed. Most homes in the Fairview area appear to date to this period of time. The trend for some New York City residents to relocate in other parts of New York State has meant that counties like Dutchess have experienced increased residential development pressure. A buildout analysis conducted in 2005 by the Dutchess County Environmental Management Council concluded that the Town of Poughkeepsie had 5,819 acres of remaining developable residentially zoned land. The 450 acres of vacant and/or developable land in the study area (the bulk of which is State property) represents about 8% of that. This indicates that residential growth pressure in the study area under current zoning may be comparatively limited in relation to the Town as a whole.

2.3 Community Resources

The following resources were identified within or nearby the study area:

- Fairview Fire District
 - The Fairview fire and emergency services district is approximately nine square miles in size. The fire station is located on Route 9G just north of Van Wyck Road.
- Saint Francis Hospital
- Poughkeepsie train station (Metro-North and Amtrak service)
- Schools
 - Violet Avenue Elementary School
 - Dutchess Community College
 - Marist College
- Historic structures
 - Former Hudson River State Hospital: the main building is designated as a National Landmark. The campus buildings contribute to a National Register Historic District and State Register Historic District.
 - Rosenlund Estate buildings: Marist College Campus, which is also a historic district.
- Parks and preserved open space
 - Fairview Park (Town of Poughkeepsie)
 - Morgan Lake (Dutchess County)
 - Pulaski Park (City of Poughkeepsie)
 - Quiet Cove Park (Dutchess County)

2.4 Available Infrastructure

Existing infrastructure within the study area includes the following:

- Central water and sewer service are available throughout the study area. The Town of Poughkeepsie Water Department obtains the bulk of the Town's water from the Hudson River, utilizing a number of water pumping and treatment facilities. One (Fairview) pump station is located on the river's edge near the northern border of the Marist campus.

- All public roads, except Route 9 and Route 9G, are maintained by the Town of Poughkeepsie. Route 9 and 9G are maintained by the New York State Department of Transportation.

2.5 Other Planning Efforts

2.5.1 Route 9 Pedestrian Safety Study

The NYSDOT completed the Route 9 Pedestrian Safety Study in December 2003. This study included the section of Route 9 from the Marist South Gate (Marist Drive) to the Marist North Gate. This study grew out of a recognition that traffic volumes on Route 9 were increasing while pedestrian activity was also increasing, creating a need to examine pedestrian safety in the corridor. The study included a survey of pedestrians within the study area, pedestrian counts at various locations along Route 9, a pedestrian origin-destination study, traffic counts and speed observations, and a review of crash data. Recommendations from this study included:

Immediate to Short Term Recommendations

- Install pedestrian markings across Marist Drive.
- Upgrade existing pedestrian signal heads with countdown model throughout corridor.
- Prohibit right-on-reds at Route 9/Marist Drive intersection.
- Sign corridor for 30 mph.
- Install crosswalk across North Road at Route 9 intersection and install an additional stop sign on the south side.
- Update pavement markings at Route 9/Fulton Street intersection to match the signs on the signal span wire and install diagonal crosswalk markings.
- Continue periodic police enforcement efforts.
- Continue Marist College pedestrian safety education program and expand to include material related to motorist's legal responsibility to yield to pedestrians at marked crosswalks.
- Re-sequence traffic signal and pedestrian phasing at Route 9/Marist North Gate intersection to be similar to phasing at Marist College Main Gate.
- Install pedestrian signal push buttons throughout corridor that illuminate when activated.
- Improve existing pedestrian crosswalk pavement markings throughout corridor.

Medium Term Recommendations

- Install sidewalk along north side of Marist Drive.
- Install crosswalk across Marist Drive at Route 9 intersection, including countdown pedestrian signal heads.
- Improve lighting at Route 9/Marist Drive intersection, Donnelly Hall mid-block crossing and Marist College Main Gate.
- Signalize Donnelly Hall mid-block crossing, including the installation of countdown pedestrian signal heads.
- Initiate *Courtesy Promotes Safety* campaign.
- Provide pedestrian structures or refuge islands at high pedestrian volume crossing locations.
- Initiate transportation corridor study, focus on congestion.

Long Term Recommendations

- Install paved path from Marist College's south entrance to Water Street, on west side of Route 9.
- Construct grade separated pedestrian facility at Route 9.

2.5.2 Town of Poughkeepsie Plan

A draft update to the Poughkeepsie Town Plan was completed in February 2006 and revised in December 2006. This Plan updates the 1990 Master Plan with current data, community input, and land use policy recommendations. A committee of Town Board members, Planning Department staff, and citizen volunteers organized numerous public visioning sessions, workshops and meetings through a several year process. In addition, the Marist College Institute for Public Opinion conducted a 2002 town-wide survey on quality of life, economic growth, and other community issues. The Town Plan and subsequent rezoning are being crafted to be consistent with the 1999 *Local Waterfront Revitalization Program* and the principles and guides from *Greenway Connections*. The draft plan is currently under review.

Relevant Policy Statements (paraphrased):

- Commercial and residential growth should be focused in designated mixed-use centers in order to define and strengthen community identity, mutually reinforce adjacent businesses, provide efficient shared services and infrastructure, minimize traffic impacts, and halt strip commercial development.
- The Town should focus development and community services in designated mixed-use centers and require all new development to reduce auto-dependence and accommodate pedestrians and bicyclists by providing sidewalks, walkways through parking lots, crosswalks, bike racks, and other amenities.
- Major gateways to the Town and historic hamlet areas should create a distinct and positive visual impression with attractive landscaping and thematic signs that define the entrances and help generate a sense of community identity and pride.
- The Town's greenspace systems should be preserved in part by concentrating development in designated Centers. Within the Centers, greenway systems should be identified and landscape design standards used to link to the surrounding natural areas. Outside of the Centers, zoning and design guidelines should be used to preserve contiguous areas of greenspace.
- The Town should adopt measures to preserve the priority greenspace parcels that are specifically targeted for preservation on the Centers and Greenspace Plan.
- The Town should adopt regulations requiring that a clearly identified open space system that reflects the goals of the Poughkeepsie Town Plan be part of every major site plan or subdivision proposal.
- The Town should improve public access to the Hudson River. Potential new access points should be identified, and existing access should be improved. Specific

examples include Quiet Cove Park, the former Dutton Lumber site, and Longview Park at Marist College.

- The Town should actively pursue, as a high priority, the establishment of a continuous Hudson River Greenway Trail which connects to Greenway Trails in the City of Poughkeepsie, the Town of Hyde Park and the Town of Wappinger.
- The Town should also protect the natural environment of the Hudson River Shore Area consistent with the adopted Local Waterfront Revitalization Program.
- Appropriate areas for larger-scale office development and manufacturing uses should be located, wherever possible, in or adjacent to centers, rather than widely separated and entirely dependent on vehicle trips.
- Large institutions, such as Saint Francis Hospital and Vassar, Marist, and Dutchess Community Colleges, should be considered economic development opportunity areas for both related new business development and convenient, walkable service centers for the campus population and yearly visitors.
- The Town's centers should be the focus for new, moderate to higher density units, housing over or adjacent to storefronts, and housing for seniors, all to alleviate dependency on the automobile and reinforce traditional community centers.
- The Town should encourage cluster or conservation development for any residential development that takes place outside of designated centers.
- The Town should evaluate future development proposals, using the *Centers and Greenspace Plan*, to determine whether the proposals present an opportunity to further the Town's recreational or greenspace goals.
- The Town should work toward establishing an interconnected system of greenspaces and recreational sites through the use of trails, paths, and sidewalks.
- The Town should make the establishment of a continuous Hudson River Greenway Trail a high priority by working with stakeholders and adjacent municipalities to link properties or obtain easements along the Hudson River shoreline.
- The Town should continue to work with Dutchess County in the development of Quiet Cove Park, which should include a Greenway Trail connection.

2.5.3 Fairview Center Concept

The Draft Town Plan places an emphasis on a 'centers' concept under which new development would be focused in community centers that are walkable neighborhoods of mixed land uses and community amenities. The Fairview Center Concept is the 'centers' concept for the study area. Its core sits along Route 9 near the Mid-Hudson Plaza, extending eastward to include the Fairview Business Park located along Fairview Avenue near the Kohlanaris Drive intersection. Specific design items include:

- Mixed-use street frontage along Fulton Street.

- A Route 9-Route 9G road connection through the HRPC property.
- A North-South secondary street on the former CSX rail right-of-way.
- Greenspace frontage along Route 9 from Marist College to Hyde Park.
- Traffic calming measures along Route 9 to reinforce the 30 mph zone.
- Linking the Hudson River Greenway Trail to the Fairview Center and Poughkeepsie Railroad Bridge.
- Working with Marist College on improving street frontages and connections at their East Campus.
- Creating pedestrian oriented mixed-uses for the southern part of the Hudson Heritage site.

2.5.4 Greenway Connections

Greenway Connections is a report prepared by the Dutchess County Department of Planning and Development (March 2000) that provides guidance for regional planning, economic development, and natural resource preservation for participating communities within Dutchess County. Included in *Greenway Connections* are the *Greenway Guides*, which offer guidelines for implementing “smart growth” strategies. This document has been formally endorsed by the Town of Poughkeepsie and is included by reference in the Town Zoning Code (Section 210-148.1).

The *Greenway Guides* provide strategies to help communities take advantage of opportunities to build open space systems and reinforce connections between properties/communities. Greenways are defined as “connections between people and places, both cooperative agreements among neighboring communities and paths where the natural and human landscapes coincide.” Greenway design principles cover topics such as:

Protecting the Countryside

- Development that fits into the landscape
- Preventing strip subdivisions
- Site sensitive utilities
- Saving farmland

Strengthening Centers

- Establishing priority growth areas
- Creating walkable communities
- Building in context

Improving Suburbs

- Promoting commercial strip redevelopment
- Minimizing congestion and improving circulation

Providing Greenway Connections

- Connecting habitats

- Protecting stream corridors
- Turning highways into greenways
- Protecting wellhead and aquifer areas

Design guidelines associated with these principles emphasize trail connections, waterway access, farmland and open space protection, and compact walkable centers, which are based on traditional settlement patterns embedded in the area's history and landscape. The policy statements particularly relevant to the study area include:

- Develop an integrated Hudson River Valley Greenway system by linking trails, bikeways, sidewalks, and scenic roads with connections to open space corridors and recreational areas.
- Improve public access along the Hudson River and other tributaries, and acquire waterway parks and access points.
- Enhance use of parks and recreation facilities with high quality outdoor recreation opportunities.
- Treat public road rights-of-way as the most prominent open spaces and areas where municipalities can most directly increase their attractiveness to residents and visitors.
- Focus development within walking distance of a central core or neighborhood center to encourage alternatives to the car and efficient use of land.
- Encourage a mixture of uses with prominent central locations for civic structures, such as post offices and municipal buildings.
- Identify priority growth areas, both infill redevelopment sites and growth areas that will strengthen existing centers or establish new centers.

2.6 Future Development Capacity

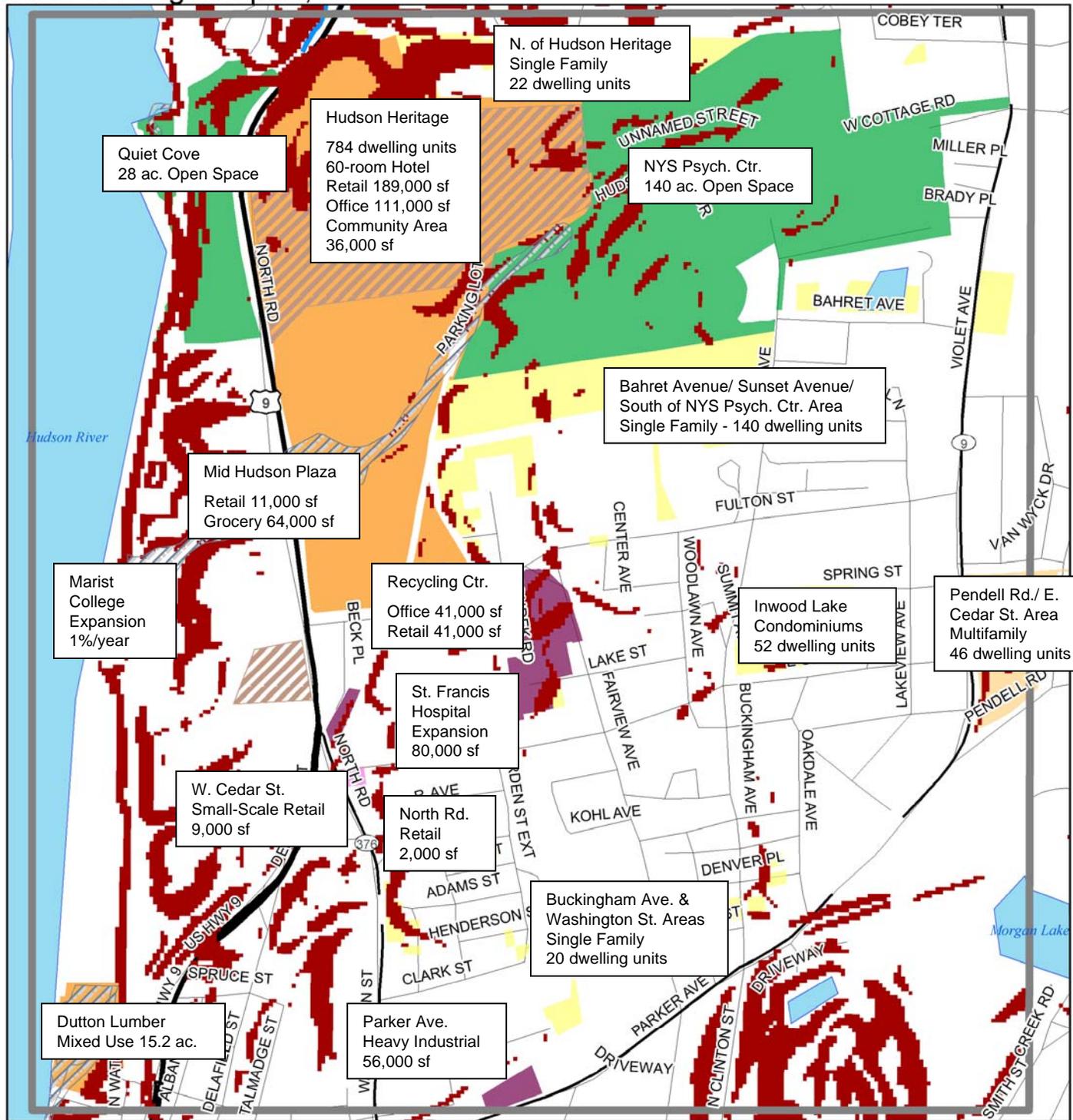
An analysis was conducted to estimate the future development capacity in the study area. First, development opportunities in the area were identified through field surveys, stakeholder interviews, and geographic analysis. The development opportunities consisted of parcels that were vacant, abandoned, underutilized or currently in the process of being redeveloped. These parcels represent latent capacity in the study area since they are available for new or more intense development that may add traffic to the surrounding roadway system.

The parcels identified as development opportunities were categorized by their current zoning designation. Using the current zoning as a guide, the projected intensity of development was estimated in terms of number of dwelling units and square footage of non-residential floor area. In quantitative terms, the build-out analysis projected that by 2016 there could be an additional 2,500 dwelling units and 1.1 million square feet of commercial space collectively in the study area and adjacent developments in Hyde Park and the City of Poughkeepsie. Figure 2.3 shows the location and size of the projected developments within the study area.

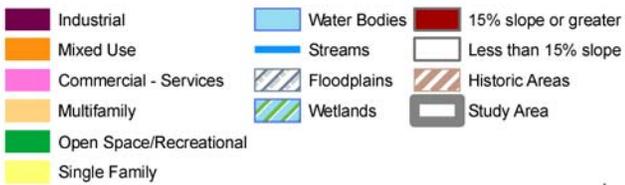
The few large, developable parcels in the study area are already the subject of specific development plans by their owners. The largest redevelopment opportunity sits with the two parcels that once made up the single HRPC property. The proposed Hudson Heritage development on the western half of the former HRPC represents the largest known, planned future land use in the study area. For this project, it was assumed that the eastern portion, which is under the control of the NYS Office of Mental Health (OMH), would be retained as open space; though OMH will continue to maintain a number of State Operated Community Residences (SOCRs) on the site and possibly expand some of its client based services, these low-intensity activities are not expected to have a significant impact on traffic operations. Potential expansion at the Mid-Hudson Plaza was considered as an opportunity for future commercial development, as was redevelopment of the existing recycling center on Fulton Street. The developable street frontage along Fulton Street presents a particular concern in terms of the form of future development and its potential impacts on traffic operations.

Beyond the sites mentioned above, other opportunities for commercial and residential development in the study area are limited. This study recognizes that the Town of Poughkeepsie is in the process of updating its zoning regulations, in part to implement the vision for the Fairview Center expressed in the Draft 2005 Town Plan. This vision calls for future development and redevelopment to create a greater mix of land uses that collectively will form a well-defined, walkable traditional village center in Fairview. Partly as a consequence of this, development outside of the study area, most notably in Hyde Park, will also have a significant influence on future travel patterns along Route 9.

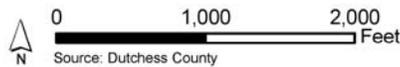
Route 9 Land Use and Transportation Study Town of Poughkeepsie, NY



Graphic: SKE 6/27/06



Land Use - Reasoned Future Scenario
Figure 2.3



Source: Dutchess County



3 Traffic Volume Forecasting

3.1 2006 Existing Conditions

Traffic volumes for 2006 PM (evening) peak hour conditions were determined at each of the study area intersections based on available turning movement counts. The following table summarizes the available count information.

Table 3.1 – Turning Movement Count Information

Intersection	Year counted	Source
Route 9/Marist Drive/Marist south driveway	2004	Hudson Heritage TIS ³
Route 9/North Rd	2003	NYSDOT
Route 9/Fulton Street/Marist main driveway	2006	NYSDOT
Route 9/Mid-Hudson plaza (right-in/right-out)	2006	NYSDOT
Route 9/Mid-Hudson Plaza/Marist north driveway	2004	Hudson Heritage TIS
Fulton Street/Mid-Hudson Plaza	2003	NYSDOT
Route 9G/Fulton Street	2004	Hudson Heritage TIS

The older turning movement counts were compared to the 2006 counts and increased where necessary. The volumes were then balanced where appropriate on Route 9 to establish the 2006 Existing PM peak hour traffic volumes, shown on Figure 3.1. The PM peak hour of the corridor is 4:45 p.m. to 5:45 p.m.

3.2 2016 Background Conditions

The 2016 background conditions represent a scenario in which normal regional growth continues over the 10-year horizon of the study and some specific developments outside of the study area are built out within the same timeframe. The 2016 background traffic volumes were established based on the following factors:

- *Historical growth.* A review of NYSDOT’s historical traffic volume data for the sections of Route 9 within the study area revealed a growth rate of 1 to 2 percent per year between 2002 and 2004. The expected growth rate for this section of Route 9 based on the PDCTC regional travel model is 0.7 percent per year.
- *Known planned developments outside the study area.* These include dormitory expansions at the Dutchess County Community College and the Culinary Institute of America (CIA) and the St. Andrew’s Village mixed-use development.
- *Developable land within the study area.* Assumptions were made for the potential future use of these parcels based on the existing zoning. This was mostly assumed

³ Hudson Heritage Traffic Impact Study, July 2004, Buckhurst Fish & Jacquemart, Inc.

to be developed for residential use, with a small amount of commercial and industrial space as well.

- *Known planned developments within the study area.* These are projects that were determined likely to be built, regardless of the outcome of this study. A small amount of commercial development and expansion of the St. Francis Hospital were included in this category.

Based on the size of the planned and potential developments, it was assumed that most of these could be accounted for through the use of a general growth rate over the 10-year study timeframe. Only the St. Andrew's Village development was accounted for explicitly within the 2016 background traffic volumes, due to the size of this particular development. Therefore, the 2016 background conditions were established by first applying an annual one percent growth rate for 10 years to the 2006 through traffic volumes, and then adding the trips associated with the St. Andrew's Village development.⁴ The resulting 2016 background traffic volumes are shown on Figure 3.2.

3.3 2016 Build-out Conditions

The 2016 build-out conditions include traffic generated by a number of developments within the study area. These developments, and the associated assumptions for trip generation, are:

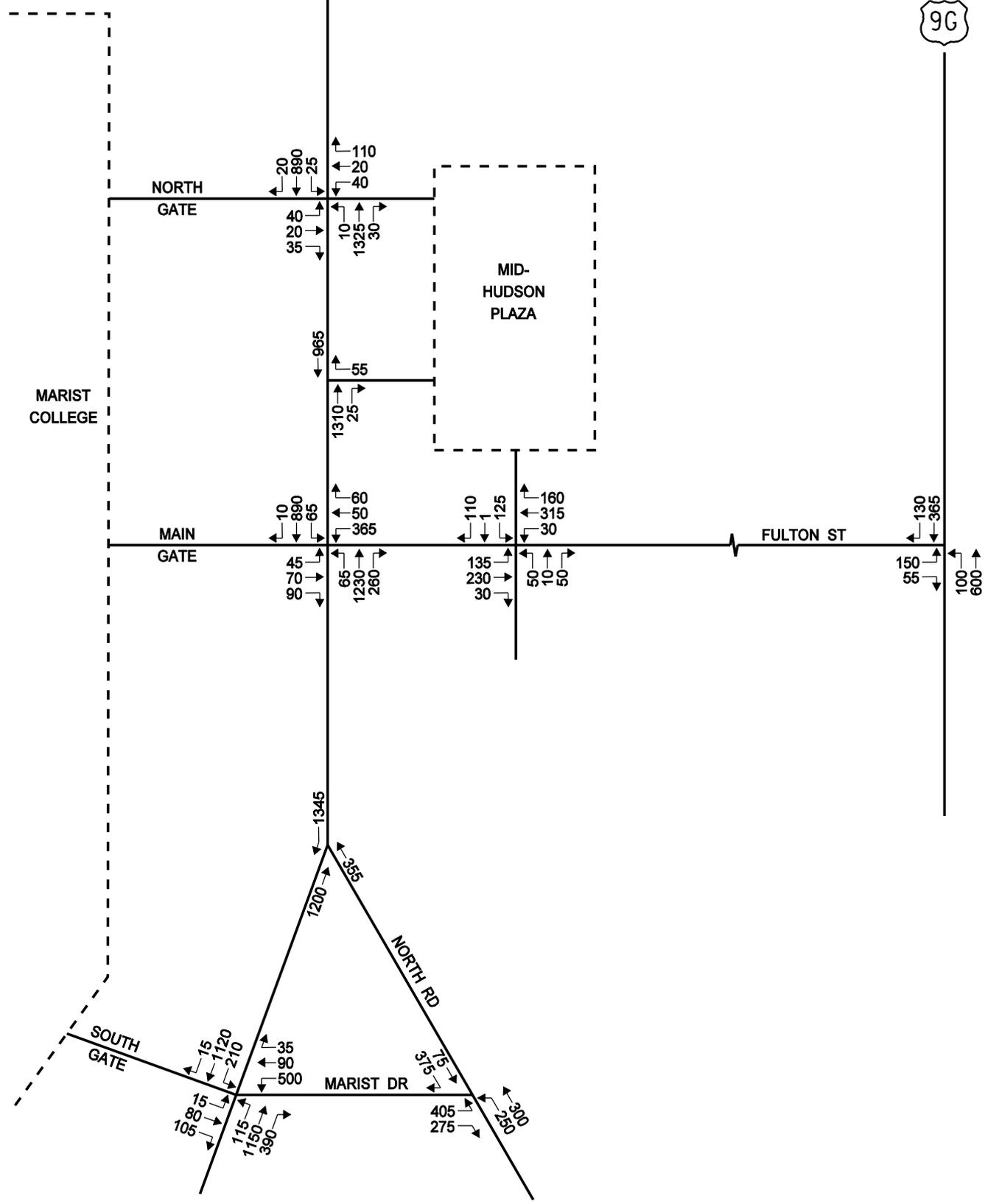
- *Hudson Heritage.* The Traffic Impact Study for this mixed-use development was used to determine the additional trips within the study area. Although the size of each component of the development has changed since the Traffic Impact Study was completed, the total trip generation of the current site plan was determined to be approximately equal to the previous trip generation.
- *Dutton Lumber Site.* The Traffic Impact Study for this residential development was used to determine the resulting trips within the study area.⁵
- *Marist College expansion.* Marist College expects student enrollment to grow by one percent per year. To account for this growth, existing traffic volumes at the Marist College driveways were increased by one percent per year for 10 years (90 trips total).
- *Mid-Hudson Plaza.* Occupancy of the vacant supermarket building and a small outparcel in the Mid-Hudson plaza (retail) were assumed. Trip generation based on standard Institute of Transportation Engineers (ITE) procedures.⁶
- *County Recycling Facility.* Assumed to be redeveloped for office and retail use. Trip generation based on standard ITE procedures.
- *Inwood Lake Condominiums.* Trip generation based on standard ITE procedures.

A trip reduction credit of ten percent was applied to the total site-specific trip generation to account for interconnections between developments within the study area. The reduced site-specific trip generation at each intersection was then added to the 2016 background traffic volumes to determine the 2016 build-out traffic volumes. The 2016 build-out traffic volumes are shown on Figure 3.3.

⁴ "Site Generated Traffic Volumes Weekday Peak PM Highway Hour," *St. Andrew's Property, Town of Hyde Park, New York, Draft Environmental Impact Statement, Volume 1, December 2005, Saccardi & Schiff, Inc.*

⁵ *Traffic Impact Study A.C. Dutton Residential Development Poughkeepsie, NY, July 2005, Fuss & O'Neill.*

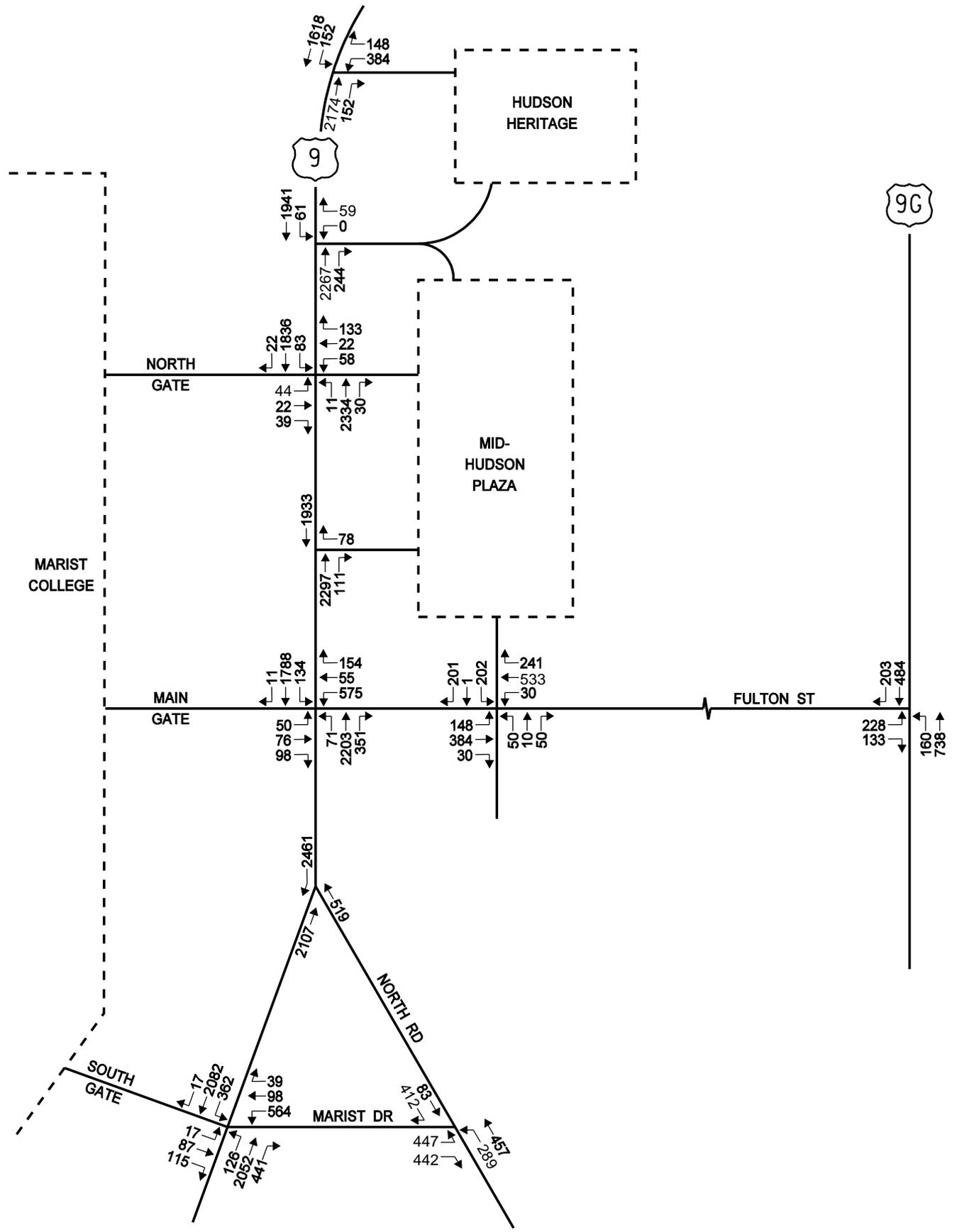
⁶ *Trip Generation, 7th Ed., 2003, Institute of Transportation Engineers.*



2006 EXISTING TRAFFIC VOLUMES
PM PEAK HOUR

ROUTE 9 LAND USE & TRANSPORTATION STUDY
TOWN OF POUGHKEEPSIE, NEW YORK





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**2016 BUILD-OUT TRAFFIC VOLUMES
PM PEAK HOUR**

**ROUTE 9 LAND USE & TRANSPORTATION STUDY
TOWN OF POUGHKEEPSIE, NEW YORK**



4 Alternatives Evaluation

4.1 Development of Alternatives

Using the traffic volume forecasts described above, the 2006 existing conditions, 2016 background conditions, and 2016 build-out conditions were analyzed. Several alternatives were also analyzed that include additional roadway connections and access modifications developed in consultation with the Advisory Committee as part of this study. The specific components of each traffic analysis scenario are outlined below.

Table 4.1 – Summary of Traffic Analysis Scenarios*

<ul style="list-style-type: none">➤ 2006 Existing includes:<ul style="list-style-type: none">• 2006 existing conditions traffic volumes• No changes to existing road network or intersections.➤ 2016 Background includes:<ul style="list-style-type: none">• 1 percent per year growth applied to the 2006 existing through traffic volumes over 10 years• Trips generated by the St. Andrew's Village (Hyde Park) development that are expected to pass through the study area• No changes to existing road network or intersections.➤ 2016 Build-out includes:<ul style="list-style-type: none">• 2016 background volumes• All site-specific trip generation within the study area• No changes to existing road network or intersections.➤ 2016 Alternative 1 includes:<ul style="list-style-type: none">• 2016 build-out traffic volumes• Traffic diversions associated with the following:<ul style="list-style-type: none">○ Route 9-Route 9G connection○ New roadway on CSX corridor east branch○ Interconnection between Hudson Heritage and Mid-Hudson Plaza➤ 2016 Alternative 2 includes:<ul style="list-style-type: none">• Traffic volumes resulting from 2016 Alternative 1• Additional traffic diversions associated with the following:<ul style="list-style-type: none">○ Realigning the northern Marist College entrance to create a 4-way, signalized intersection at the shared Mid-Hudson Plaza/Hudson Heritage access and eliminating the existing Marist north entrance/Mid-Hudson Plaza intersection.○ Left-turn prohibition from Fulton Street into Mid-Hudson Plaza➤ 2016 Alternative 3 includes:<ul style="list-style-type: none">• Traffic volumes resulting from 2016 Alternative 2• Half of the existing pedestrian phase time at the Fulton Street intersection (this represents a condition under which enough pedestrians can be removed from the at-grade crossing so that the pedestrian phase of the signal is activated during half of the cycles)➤ 2016 Alternative 4 includes:<ul style="list-style-type: none">• Same as 2016 Alternative 3, plus• Additional traffic diversions associated with converting the Marist College main gate to one-way inbound traffic

*See Sections 3.2 and 3.3 for detailed descriptions of the traffic volume development for the 2016 Background and Build-Out conditions.

4.2 Analysis Results

4.2.1 Traffic Diversions

The additional vehicle connections proposed in the alternatives will alter the travel patterns within the study area. The traffic diversions that are expected to result from each of these additional connections are described below. The resulting reduction in traffic volume at the Route 9/Fulton Street intersection is also noted, as this is the critical location within the corridor (reductions reflect number of trips diverted during PM peak hour).

➤ *Route 9-Route 9G Connector*

Diversions were assumed primarily for trips to/from the Hudson Heritage development. Trips between Hudson Heritage and destinations in the eastern part of the City of Poughkeepsie would likely utilize the access to Route 9G instead of the access to Route 9. Trips to destinations along Route 9G to the north would also use the Route 9G access for Hudson Heritage. Therefore, this connection will reduce the through movements along Route 9 as well as the turning volumes at the Hudson Heritage driveways on Route 9, while increasing traffic volumes on Route 9G. A portion of the trips to the Mid-Hudson Plaza that currently use Route 9G and Fulton Street would also be expected to use the Route 9/Route 9G connector (in conjunction with a connection between Hudson Heritage and the plaza). *Total traffic volume reduction at Route 9/Fulton Street of 380 trips.*

➤ *New roadway on CSX corridor east branch*

The analysis assumed that the new roadway would extend from Hudson Heritage to West Cedar Street, or possibly to Parker Avenue, and would allow access to the Mid-Hudson Plaza. Local trips to and from the Mid-Hudson Plaza and Hudson Heritage would likely utilize this road connection. The new road is expected to attract trips from residential areas surrounding the Mid-Hudson Plaza rather than diverting through trips from Route 9. Therefore, extending the road to Parker Avenue would not significantly impact the resulting traffic diversions. By providing local drivers with an additional linkage, this new road would decrease turning movement volumes at the Route 9/Fulton Street and Fulton Street/plaza entrance intersections and decrease volumes on Route 9 adjacent to the plaza. *Total traffic volume reduction at Route 9/Fulton Street of approximately 200 trips.*

➤ *Interconnection between Hudson Heritage & Mid-Hudson Plaza*

This connection would serve approximately fifty trips between Hudson Heritage and the Mid-Hudson Plaza. By providing this connection, local traffic can be kept off of Route 9 and the turning movement volumes at the Hudson Heritage and Mid-Hudson Plaza driveways will decrease. *No impact on traffic volumes at Route 9/Fulton Street*

➤ *Realignment of northern Marist College driveway*

This scenario would involve closing the existing Marist College northern driveway and the existing main entrance to the Mid-Hudson Plaza and eliminating the traffic signal at this location. The northern Marist College driveway would be realigned to create a four-way signalized intersection with the shared Mid-Hudson Plaza/Hudson Heritage south driveway (Winslow Gate). The Winslow Gate intersection currently operates under a flashing signal (flashing yellow for the Route 9 approaches, flashing red for Winslow Gate Road). The proposed traffic signal at the Hudson

Heritage northern entrance would be eliminated under this alternative. Under this scenario, the trips previously expected to use the northern Hudson Heritage driveway would shift to the signal at the southern driveway (Winslow Gate). This alternative would not impact through traffic volumes on Route 9, but would eliminate one traffic signal within the corridor. *No impact on traffic volumes at Route 9/Fulton Street.*

➤ *Left-turn prohibition from Fulton Street into Mid-Hudson Plaza*

Eliminating the left-turn into the Mid-Hudson Plaza from Fulton Street would shift traffic from the northbound right-turn movement to the northbound through movement at Route 9/Fulton Street. The traffic that currently enters the plaza by making a left turn from Fulton would instead enter the plaza at the right-in/right-out driveway on Route 9. *No net change in traffic volumes at Route 9/Fulton Street.*

➤ *Elimination of outbound movements at Marist College main gate*

Converting the Marist College main gate to one-way inbound traffic would increase the outbound traffic volumes at the remaining two driveways. The total volume of traffic in the corridor would not be reduced but would be redistributed. The benefit of this option is that it allows for an increase in the amount of green time allotted to the Route 9 approaches at Route 9/Fulton Street, since the eastbound phase of the signal can be eliminated. *Net traffic volume reduction at Route 9/Fulton Street of approximately 150 trips.*

4.2.2 Intersection Level of Service Results

Level of service (LOS) is a letter grade given to an intersection to describe the operating conditions at that intersection, from LOS A (very good, drivers experience almost no unexpected interruptions to travel) to LOS F (very poor, drivers will experience significant queuing and delay). Each level of service, A through F, represents a range of expected average “control delay” per vehicle at an intersection. Control delay includes the time that a driver spends decelerating, stopped, moving up in queue, and accelerating as a result of the intersection control (such as a traffic signal or a stop sign).⁷

Intersection capacity and level of service analysis was performed using Synchro software, which automates the procedures specified in the *Highway Capacity Manual 2000*. The level of service and average vehicle delay for each intersection under the various alternatives are summarized in Table 4.2. Appendix A contains detailed descriptions of LOS criteria for signalized intersections, unsignalized intersections, and the detailed Highway Capacity Manual Level of Service reports.

As shown in Table 4.2, the Route 9/Marist Drive, Route 9/Fulton Street, Fulton Street/Mid-Hudson Plaza, and Route 9G/Fulton Street intersections are currently operating at LOS F conditions and will continue to operate at this level of service in the future. The additional traffic associated with the 2016 Background condition results in an increase in delay at all intersections within the study area. Under the 2016 Build-out condition, most intersections within the study area are expected to operate at LOS E or LOS F.

⁷ Transportation Research Board (2000) *Highway Capacity Manual*, National Academy of Sciences.

Each of the alternative scenarios generally provides incremental improvements in the level of service at the study area intersections. The intersection delays resulting from Alternative 4 are generally lower than the delays expected for the 2016 Build-out condition, but greater than the delays expected for the 2016 Background condition.

Table 4.2 – Intersection Level of Service Summary (PM Peak Hour)

Intersection		Traffic Control	Overall LOS (Delay in seconds)						
			2006 Existing	2016 Background	2016 Build-out	2016 Alternative 1	2016 Alternative 2	2016 Alternative 3	2016 Alternative 4
1	Route 9/Marist Drive/Marist south driveway	S	F (81.7)	F (114)	F (193)	F (164)	F (164)	F (162)	F (182)
2	Route 9/North Rd	U	C (15.6)	E (44.9)	F (289)	F (112)	F (112)	F (112)	F (141)
3	Route 9/Fulton Street/Marist main driveway	S	F (84.8)	F (260)	F (445)	F (350)	F (380)	F (256)	F (130)
4	Route 9/Mid-Hudson plaza (right-in/right-out)	U	B (10.7)	C (17.7)	E (44.3)	D (26.9)	D (33.3)	D (28.2)	C (17.1)
5	Route 9/Mid-Hudson Plaza/Marist north driveway	S	C (28.7)	E (57.9)	F (144)	F (94.0)	Na	na	Na
6	Route 9/Hudson Heritage south driveway (9-9G connector)/ (Marist north driveway)	U [S]	na	na	D (33.1)	C (24.9)	F [119]	F [108]	F [108]
7	Route 9/Hudson Heritage north driveway	S [U]	na	na	E (74.3)	C (32.0)	D [27.2]	D [27.2]	D [27.2]
8	Fulton Street/Mid-Hudson Plaza	U	F (*)	F (*)	F (*)	F (*)	F (*)	F (*)	F (*)
9	Route 9G/Fulton Street	U	F (399)	F (*)	F (*)	F (*)	F (*)	F (*)	F (*)

S = signalized; U = unsignalized; na = Not applicable (intersection does not exist under this scenario); * = delay greater than 600 seconds (10 minutes)

Notes: 1) For unsignalized intersections, the LOS and delay given is for the minor street approach.

2) Results are cumulative for each successive alternative.

3) See Table 4.1 for detailed descriptions of each analysis scenario.

When excessive delay is experienced at an unsignalized intersection, such as the Route 9G/Fulton Street intersection, further engineering study should be conducted to determine if a capacity improvement, such as a traffic signal, is justified. A traffic signal should not be installed unless one or more of the warrants contained in the New York State Codes, Rules, and Regulations (Title 17: Transportation, Chapter V, Part 271 “Warrants for Traffic Control Signals”) is met.

4.2.3 Corridor Speed and Delay Results

Speed and delay within the Route 9 corridor were determined for each alternative using SimTraffic software. The simulation model determines an average speed, travel time, and delay for a vehicle traveling through the corridor. The delay is the difference between simulated travel time through the corridor under a specified set of traffic control and volume conditions (existing, background, build-out, etc.) and the simulated travel time through the corridor with no traffic control devices or other vehicles. Individual experiences may differ from day-to-day. The results are summarized in Figure 4.1.

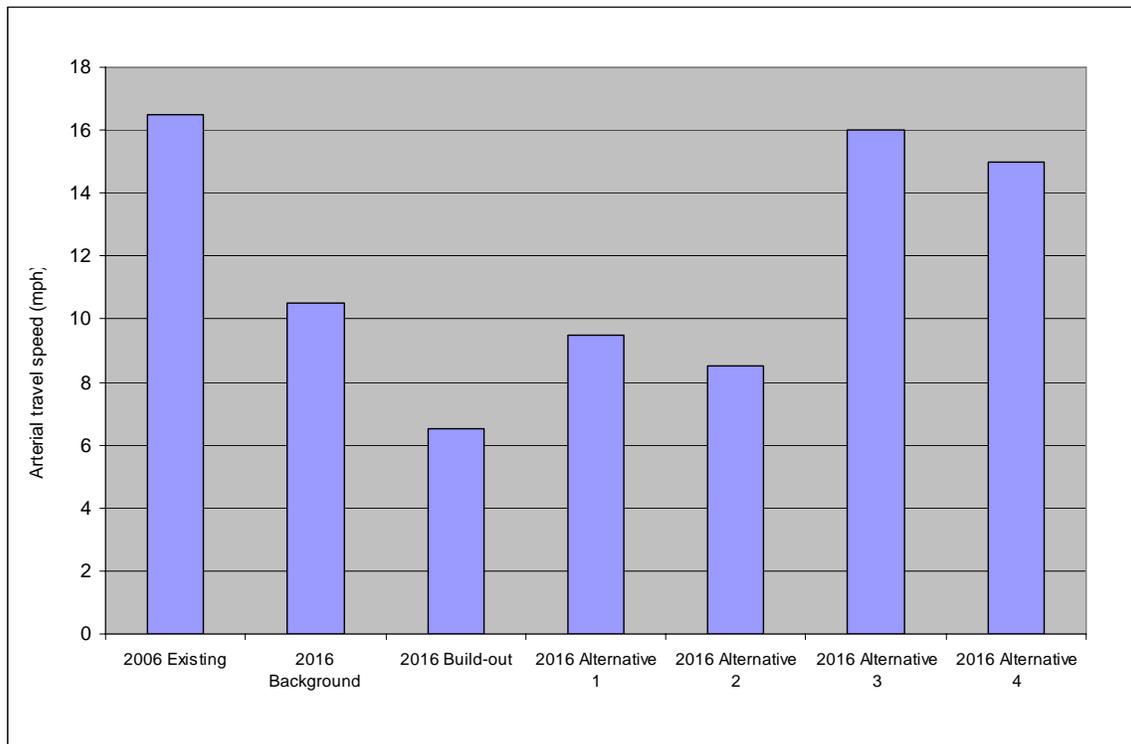


Figure 4.1 – Arterial Travel Speed (mph), Route 9 northbound/southbound average (PM Peak Hour)

See Table 4.1 for detailed descriptions of each analysis scenario

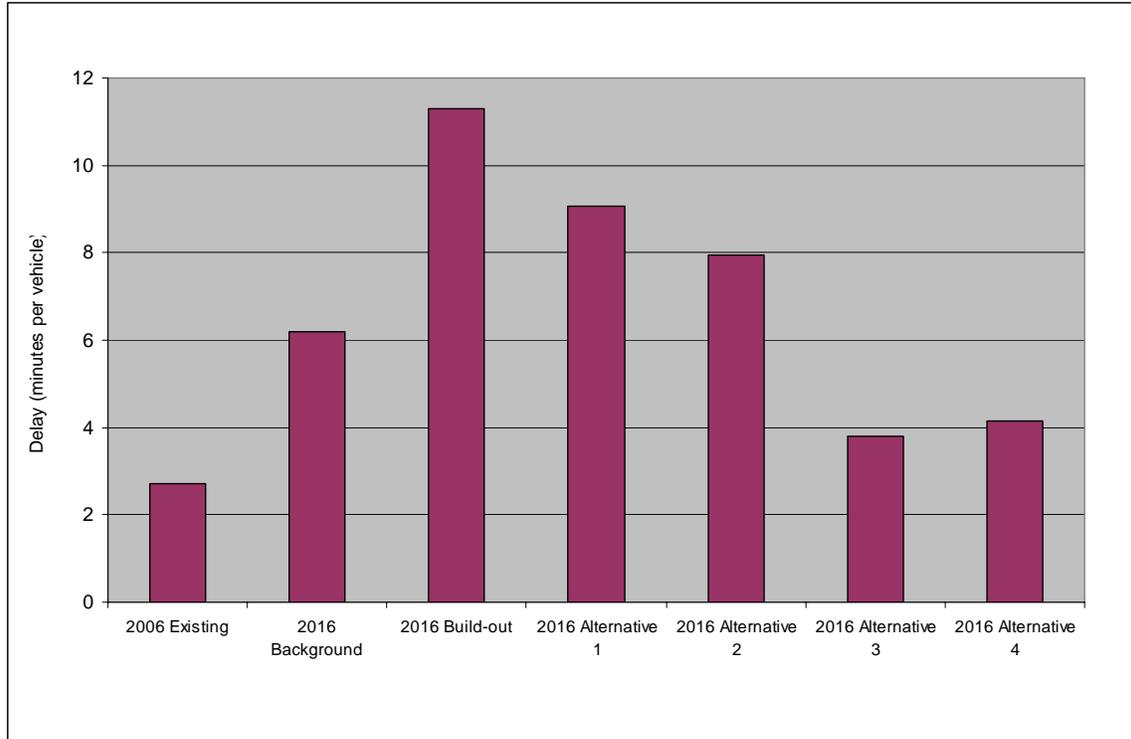


Figure 4.2 – Delay (minutes per vehicle), Route 9 northbound/southbound average (PM Peak Hour)

See Table 4.1 for detailed descriptions of each analysis scenario

As illustrated by Figure 4.1 and Figure 4.2, significant reductions in arterial travel speed and increases in delay are expected with the addition of the 2016 Background and 2016 Build-out traffic volumes. Alternative 1 and Alternative 2 both increase the travel speed and decrease the delay, but do not yet reach 2016 Background levels for these performance measures. Alternative 3 and Alternative 4 are expected to result in greater travel speeds and lower delays than the 2016 Background condition.

4.3 Other Considerations

4.3.1 Traffic Calming

Currently, the section of Route 9 between the mid-block pedestrian crossing (Donnelly Hall) and the right-in/right-out driveway at Mid-Hudson plaza is posted at 30 mph. Outside of the 30 mph zone, the corridor transitions to 40 mph and then to 45 mph.

Chapter 25 of the NYSDOT Highway Design Manual was consulted to determine suitable traffic calming treatments for the portion of Route 9 within the study area. NYSDOT defines applicable traffic calming measures based on four general speed categories. A 30 mph roadway is classified as a Category II facility and a 40 mph roadway is classified as a Category III facility. Category II is further subdivided as “local” and “other.” The NYSDOT classifies traffic calming features as suitable, not recommended, or not permitted for each facility category. Suitable traffic calming features for Category II “other” and Category III facilities are listed in the following table.

Table 4.3 – Suitable Traffic Calming Features (Category II & III Facilities)

Streetscaping	Route modifications
<i>Color contrast or patterns/markings</i>	<i>Arterial improvements</i>
<i>Landscaping</i>	<i>Bike facilities</i>
<i>Sidewalks, shoulders</i>	<i>Median treatments</i>
<i>Street furniture and lighting</i>	<i>Modified intersection, channelization</i>
<i>Surface textures</i>	<i>One-way operation</i>
Traffic Control Devices	<i>Truck prohibitions</i>
<i>Higher visibility crosswalks</i>	Alternate side parking (Category II only)
<i>Signing</i>	Constrictions
<i>Progressive traffic signal systems</i>	<i>Curb extensions at intersections*</i>
<i>Walk phase on signals</i>	<i>Pedestrian refuge/midblock islands</i>
<i>Regulations/enforcement</i>	Gateways

*only with upstream parking

Note: Category II facilities are divided into “local streets or roads” and “all other streets or roads.” The information listed above is for “all other streets or roads.”

Source: Table 25-1, NYSDOT *Highway Design Manual*, Rev. 36, February 1999

Traffic calming features that the NYSDOT classifies as “not recommended” may be considered in case-specific projects. There are a number of traffic calming features that are “not recommended” for Route 9, including vertical shifts (raised crosswalks and intersections, speed cushions/humps/tables), chicanes, and neckdowns/chokers.

The NYSDOT also provides guidance on reduced operating speeds for Category III facilities, stating the following:

“It may be possible to reduce operating speeds for some projects as part of a traffic calming effort. A local road or street, and in some instances a state highway, may have an existing operating speed far in excess of the speed limit or the desired operating speed...it may be acceptable and consistent with good engineering practice to progress, as exceptions to design standards, a design which will lower the anticipated operating speed.” (HDM Section 25.6.3)

The NYSDOT Highway Design Manual specifies conditions that must be documented in order to establish an operating speed that is lower than that which would result from the normal process. It must be demonstrated that the existing operating speed is inconsistent with the intended use and function of the roadway or that there is an existing or potential safety issue. The designer must demonstrate that the proposed design will impact the existing operating speeds and gain the support of the NYSDOT Regional Traffic Engineer.

There is precedence for reducing the speed limit within this corridor. As noted above, a section of Route 9 within the study area has a posted speed limit of 30 mph, which was reduced from 40 mph in 2001. The 30 mph zone should be extended north to the Quiet Cove Park entrance. Additional speed limit reductions will be most successful if accompanied by changes to the surrounding physical environment, such as gateway treatments, landscaping, varying surface textures, and pedestrian islands.

4.3.2 Land Use

The capacity analysis shows that the Route 9/Fulton Street intersection is the critical intersection in the corridor and that the westbound left-turn movement is the critical movement at this intersection. In order to minimize impacts to this already-congested intersection, the Town could limit the development of projects with high trip generation rates and encourage projects with relatively low trip generation rates along Fulton Street. The table below lists some potential land uses for the Fulton Street area and the standard trip generation rates for each of these uses.

**Table 4.4 – Comparison of Trip Generation Rates for Select Land Uses
(PM Peak Hour)**

Use	Trip Generation Rate	Unit	ITE Land Use Code
Senior apartments	0.11	Dwelling unit	252
Condos	0.52	Dwelling unit	230
Apartments	0.60	Dwelling unit	220
Single family homes	1.01	Dwelling unit	210
Hotel	0.59	Room	310
Mini-warehouse (self-storage)	0.26	1000 square feet	151
Office	1.49	1000 square feet	710
Recreational Community Center	1.64	1000 square feet	495
Retail (specialty)	2.71	1000 square feet	814
Retail (shopping center)	3.75	1000 square feet	820
Health Club	4.05	1000 square feet	492
Movie Theater	5.22*	1000 square feet	445
Supermarket	10.45	1000 square feet	850
Restaurant	10.92	1000 square feet	932
Day Care	13.18	1000 square feet	565

*Friday

Source: *Trip Generation*, 7th Ed., 2003, Institute of Transportation Engineers.

4.3.3 Transit

There are currently six bus routes that travel through the study area. Five of these routes are operated by the Dutchess County Division of Mass Transit (known as the “LOOP” service) and one is operated by City of Poughkeepsie Transit. The LOOP routes include the Commuter Train Connection (CTC), which provides service to the Poughkeepsie Train Station coordinated with peak period Metro-North Railroad commuter trains to and from New York City. The bus routes in the study area generally provide service along Route 9 and Route 9G between the City of Poughkeepsie and Hyde Park, with select routes extending south to the Poughkeepsie Galleria or north to Tivoli. Most of the routes have a limited number of runs each day, focused on the morning and afternoon peak periods. Two of the routes run continuously throughout the day from morning through evening with 30 to 60 minute headways. The CTC service provides five morning runs arriving at the Poughkeepsie Train Station between 5:00 a.m. and 7:00 a.m. and seven evening runs departing the Poughkeepsie Train Station between 5:45 p.m. and 8:30 p.m. at headways of 20 to 40 minutes. Coach USA provides inter-city bus service along Route 9 between Rhinebeck (north of the study area) and New York City.

According to the *Transit Capacity and Quality of Service Manual*⁸, when average headways for transit service exceed 20 minutes passengers must plan ahead and adjust their schedules to fit the available transit service. When headways are shorter than 20 minutes, transit starts to become attractive to “choice” riders. As headways decrease, riders are less likely to need to consult a published schedule and are more likely to tolerate a missed bus. A high quality transit service should also provide riders with service that extends beyond the peak commuter periods and stops that are conveniently located.

The level of transit service that is provided depends on the demand for the service. Demand for transit service is influenced by numerous factors, such as residential density, density of potential destinations, road congestion, and parking costs. The Victoria Transport Policy Institute⁹ notes that as a general rule of thumb residential densities of four to seven dwelling units per acre are required to create demand for “basic” bus service, and six to fifteen dwelling units per acre are required to create demand for “frequent” bus service. The majority of the study area (excluding the Hudson Heritage property) is currently zoned R-10, for residential use at approximately 4 dwelling units per acre, which is less than even the minimum density required to support a “frequent” bus service. Of course, more people will choose transit as the service becomes more frequent and convenient, but a base level of demand must be present to support a frequent service.

In the absence of aggressive demand-management strategies (such as high parking fees), an increase in density would be necessary to support a higher-level transit system in the study area. However, there may be some opportunities to modify the existing service to better serve the Fairview area. For example, it has been suggested that the direction of the CTC should be reversed to better serve potential riders at Hudson Heritage. Currently the CTC service travels north on Route 9 and then south on Route 9G before arriving at the train station in the morning (clockwise loop) and in the opposite direction during the evening. Under this schedule, riders boarding on Route 9 in Fairview (as Hudson Heritage residents presumably would do) would be the first picked up in the morning and the last dropped off in the evening. Reversing this would minimize time on the bus for Hudson Heritage residents. The purpose of the CTC service is to serve all residents of the Fairview area, of which Hudson Heritage is just one component, and any services changes should consider the needs of all potential riders.

⁸ Kittelson & Associates, Inc., KFH Group, Inc., Parsons Brinckerhoff Quade & Douglas, Inc., and Dr. Katherine Hunter-Zaworski. (2004) Transit Cooperative Research Program Report 100: *Transit Capacity and Quality of Service Manual*, 2nd Ed. Transportation Research Board: Washington, D.C.

⁹ Victoria Transport Policy Institute. “Land Use Density and Clustering,” from *Online TDM Encyclopedia*, Updated June 2006. <http://www.vtpi.org/tdm/index.php>

5 Recommendations

A brief description of each category of recommendations is included here; refer to the *Concept Plan* and *Recommendations Matrix* for the full details of individual recommendations.

Appendix B contains recommendations for amendments to the Town of Poughkeepsie Zoning Code.

5.1 Application of Fairview Center Concept

A number of elements in the Concept Plan support the Town of Poughkeepsie's concept for Fairview Center. Implementing these recommendations will contribute to the "village center" character desired for the Fairview area. The recommendations in this category include a connection between Hudson Heritage and the Mid-Hudson Plaza, traffic calming, ensuring that new development or redevelopment is consistent with the Fairview Center concept, and creation of a mixed-use street frontage along Fulton Street. These are short- to mid-term recommendations, including some on-going coordination with private developers.



Existing view of Fulton Street, looking east. Additional buildings close to the road would create a continuous street-frontage and a "main street" character.

5.2 Future Land Development

Given the intensity of new development expected in the area, the use of effective zoning that enforces the goals and recommendations identified in the Town Plan becomes ever more important. The Town stands at a unique juncture to shape the design and scope of future development in the Fairview area; this not only includes new residential and commercial development (e.g. Hudson Heritage), but also the infrastructure that will support these new land uses (e.g. new bicycle/pedestrian trails and road connections). This Study was partly born out of the recognition that there was a confluence of development proposals and transportation issues facing the Fairview area – all occurring against the backdrop of creating a new Town Plan and Zoning Law. To assist with the latter, this set of recommendations seeks to provide the Town, County, and NYSDOT with a set of land use principles and zoning strategies to guide future development in the area. Included in this category are recommendations for strategies to manage the land use development process to be sensitive to traffic impacts, consider the effects of development in neighboring municipalities including the cumulative impacts of development, and stimulate mixed-use projects that may decrease total vehicle trips.

Local zoning is a useful implementation mechanism that can be employed in guiding the character of future development and redevelopment to help achieve the Concept Plan objectives. Zoning anticipates the potential for change and can address not only types of land uses, but intensity of use and the associated parking and traffic demand. Implementation of these recommendations will be on-going as development occurs. Specific zoning code amendment recommendations are described in detail in Appendix B.

5.3 Transit and Road Projects

This category includes two new road projects – the Route 9-Route 9G connector and the reuse of the east branch of the CSX corridor – and general recommendations for enhanced transit service within the study area. The road projects are long-term projects that will require coordination between public and private entities.

5.4 Pedestrian Improvements

Pedestrian safety was a primary concern among the project stakeholders and the public. The resulting recommendations include specific projects, such as the design and construction of a pedestrian bridge and the reuse of the west branch of the CSX corridor for a multi-use trail, and general recommendations to enhance pedestrian safety and regional connectivity.



Looking south along the CSX west branch. The corridor provides an opportunity for a new pedestrian connection.

As part of this study, the PDCTC convened a Pedestrian Subcommittee with representatives from Marist College, NYSDOT, the Town of Poughkeepsie, and Dutchess County. Details of the subcommittee meeting are included in Appendix C. This subcommittee agreed that a grade separated pedestrian crossing should be pursued on Route 9, to ensure pedestrian safety in the corridor as Marist College continues to expand. The overpass should be located on Route 9 between Fulton Street and Beck Place. The design and exact location of the overpass have yet to be determined, but it is noted that well-designed, convenient entries will be key to the success of the structure. The subcommittee agreed that the Donnelly Hall mid-block crossing would be removed upon completion of the overpass and that the other at-grade crossings would be maintained. NYSDOT and Marist College are progressing discussions about the details of a pedestrian overpass.

5.5 Access Management and Operation Improvements

This category includes recommendations for specific access changes or modifications to traffic operations at study area intersections. In general, the recommendations support consolidating and restricting access on Route 9 and Fulton Street in order to preserve existing roadway capacity. These are mid- to long-term projects that will likely be progressed through partnerships between NYSDOT, the Town of Poughkeepsie, and private developers.

6 Conclusion

This study considered the development plans of major stakeholders, technical traffic analysis results, and input from advisory committee members and the public to develop a set of land use and transportation recommendations for the future of the Fairview area. These recommendations are described in the *Concept Plan* and *Recommendations Matrix*. Five categories of recommendations were developed:

- Application of the Fairview Center concept
- Future land development
- Transit and road projects
- Pedestrian improvements
- Access management and operations improvements

The results of this study are in keeping with the vision of the Fairview area as an “emerging center,” as described in the latest version of the Draft Town Plan. The recommendations were built around the consensus issues identified by the project stakeholders, including pedestrian accessibility and safety, traffic operations along Route 9, and the need for alternative travel routes. The recommendations from this study should inform future land development and transportation system changes in the Fairview area.

Appendix A

Level of Service Criteria

LOS Definitions

The following is an excerpt from the *2000 Highway Capacity Manual (HCM)*.

Level of Service for Signalized Intersections

Level of Service (LOS) for a signalized intersection is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-minute analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the volume-to-capacity ratio for the lane group. Levels of Service are defined to represent reasonable ranges in control delay.

LOS A describes operations with low control delay, up to 10 seconds per vehicle. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay.

LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also be contribute significantly to high delay levels.

Level of Service Criteria for Unsignalized Intersections

Four measures are used to describe the performance of two-way stop controlled intersections: control delay, delay to major street through vehicles, queue length, and volume-to-capacity ratio. The primary measure that is used to provide an estimate of LOS is control delay. This measure can be estimated for any movement on the minor (i.e., stop-controlled) street. By summing delay estimates for individual movements, a delay estimate for each minor street movement and minor street approach can be achieved. The level of service criteria is given in Exhibit 17-2/22.

For all-way stop controlled (AWSC) intersections, the average control delay (in seconds per vehicle) is used as the primary measure of performance. Control delay is the increased time of travel for a vehicle approaching and passing through an AWSC intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

Exhibit 17-2/22: Level-of-Service Criteria for Stop Controlled Intersections

Level of Service	Control Delay (seconds per vehicle)
A	≤ 10.0
B	>10.0 and ≤ 15.0
C	>15.0 and ≤ 25.0
D	>25.0 and ≤ 35.0
E	>35.0 and ≤ 50.0
F	>50.0

Appendix B

Recommendations for Zoning Code Amendments

1. Overview

This appendix articulates some land use objectives relative to traffic generation in the study corridor, and makes some recommendations for amendments to the Town of Poughkeepsie Zoning Code. Although the Poughkeepsie regulations are currently undergoing an independent revision process, the amendments suggested herein can complement that process and can be integrated with other zoning language changes already being considered. The recommendations are followed by information about resources the Town can use to get more detailed information on each zoning approach.

2. Land Use Objectives Related to Travel

The Concept Plan reflects four general objectives for land use directly related to enhanced transportation system operations. These include:

- Minimize development of new, high vehicle trip generators in the corridor, particularly those with peak activity periods that coincide with afternoon peak vehicle travel periods on Route 9.
- Encourage mixed-uses that facilitate pedestrian circulation and reduce vehicle trips.
- Encourage neighborhood-scale development consistent with the Fairview Center Concept from the Draft Town Plan, which places a priority on pedestrian activity, slower vehicle speeds, and internal connections among uses.
- Manage parking and access to land to enhance safety and flow on Route 9 and intersecting connector roads.

3. Zoning Recommendations

The Town of Poughkeepsie Zoning Code, enforcing the goals and objectives of the Town Plan, serves as the most effective means to influence the transportation impact of new development in the Town. Specifically, the Zoning Code can establish a set of design and use standards for the Fairview Center that finds a balance between the competing desires for promoting new development, improving traffic operations, and creating a more livable landscape. The recommendations below provide some approaches to enhancing the Zoning Code to achieve this balance. Though the individual approaches can be used separately, the Town would see the greatest benefit if they were applied in unison.

Recommendation: Allowable Uses

As it applies to the Fairview Center, the Zoning Code should manage the scope and types of uses in new development in a way that generates the fewest number of vehicle trips.

There is a wide range of land uses allowed in the varied zones that occur within the study area. Use factors that influence trip generation include:

- Type of use – for example, common high-trip generators include big-box stores, gas stations, and drive-through businesses
- Peak or primary hours of operation – a chain or formula restaurant, for example, may generate steady traffic throughout the day but have peak trips generated around mealtimes, including the PM peak hour of concern on Route 9.

- Design features – Drive-through businesses, such as fast-food restaurants, banks, and pharmacies, can create a steady stream of turning movements onto and from a roadway, contributing to congestion and safety issues.

Commercial establishments whose function is dependent on automobile traffic and direct access should be prohibited; these include gas stations, drive-through businesses, self-storage facilities, car-washes, and automobile sales. High intensity uses such as big-box retailers should also be limited, except for those whose activity occurs primarily in off-peak travel hours (e.g. movie theaters).

Recommendation: Bulk and Height Restrictions

The zoning code should include maximum building square footage limitations and possibly limit the height of any new structure to a “neighborhood scale” within the Fairview area.

Factors such as the height and overall size of a business or multi-family structure will, in part, determine the number of trips a use will generate simply based on the number of people that may be visiting the site. A big-box store, for example, is designed to attract a certain volume of patrons over the course of the day.

Recommendation: Parking Standards

The Zoning Code should include parking standards that maximize the efficiency of available parking and promote the safety and convenience of pedestrians.

The location and design of parking on a lot will influence the manner in which vehicles enter and circulate. In addition, the actual number of parking spaces provided will influence the number of trips to and from a site. One example is the Mid-Hudson Plaza, which has an excess of parking for current uses. This may be due to the current level of activity at the businesses, but there may also be simply too much parking. The Town Zoning Code currently states that where two or more different uses occur on a single lot, the total amount of parking to be provided must be the sum of the requirements for each individual use. This requirement does not allow for economies of scale in places such as shopping centers where one space may well serve more than one use. In addition, opportunities for shared parking increase in a mixed-use environment, particularly village centers with good pedestrian access and ample access to transit such as the one envisioned under the Fairview Center concept. The Zoning Code should employ parking standards that consider such options as:

- Shared parking
- Allowing parking to be located off the same property as the primary use and up to a distance of 750 feet away from the related use
- One-directional travel within parking areas to channel vehicles to desired access points
- Safe, convenient, and inviting pedestrian amenities within the parking lot
- Maximum, as well minimum, off-street parking requirements
- Prohibitions on any parking that requires backing into traffic or across a sidewalk

Recommendation: Site Design Requirements

The Zoning Code should include specific site design standards for the location and visibility of signage, location of parking, consolidation of egress points, landscaping, and pedestrian access.

Site design features such as landscaping, signage, lighting, and the location of access drives and parking will influence driver understanding of access to a site and the safety of driver turning movements into and around a site. While the existing regulations mention some of these features in a general way, more specific design requirements (such as a limit of one driveway per site) would help clarify the regulations.

Streetscaping can be a traffic-calming tool that creates a visual roadway setting suggesting to drivers that they are in a pedestrian oriented area and one of slower travel speeds. Individual property owners whose developments provide street frontage landscaping and aesthetic signage can contribute substantially to this effect.

Recommendation: Access Management

The Zoning Code should include a more comprehensive set of provisions to require sound access design in the course of land development.

Access management is the process of overseeing access to land development while simultaneously preserving the flow of traffic on the surrounding roadway system in terms of safety and capacity. Access design characteristics that directly impact roadway traffic flow and safety include location and design of access drives and side roads (and/or frontage/feeder roads) as well as location of signals, medians, and turn lanes. Zoning language for access management generally establishes a set of criteria for the location, number, and design of all access points along a given road or roads.

Language for access management in the Poughkeepsie Zoning Code should be enhanced to include:

- A set of definitions related to terminology used
- A discussion of how the access requirements will be administered
- Requirements for:
 - Number and spacing of driveways relative to adjacent properties' driveways and intersections
 - Sight distances
 - Driveway throat length (stacking room for waiting cars)
 - Location relative to opposing driveways
 - Right in/right out only driveways in certain circumstances
 - Location of driveways on double frontage lots – lots with frontage on more than one street or frontage on both the street and another lot with parking and access to the street
 - Emergency vehicle and transit access
 - Provisions for shared driveways and shared parking
 - Provisions for non-conforming access drives and resolution of situations where the standards cannot be achieved
 - Standards for when a traffic impact report would be required to substantiate the proposed access design
 - Information necessary on a site plan related to access design

Sample recommended access design standards for driveway spacing and sight distances on an arterial road such as Route 9 are shown in the Table B.1. The values shown in Table B.1 are based on guidance from the Transportation Research Board's *Access Management Manual*. These values represent one possible set of requirements. Additional guidance on design standards is available from the American Association of State Highway and Transportation Officials (AASHTO) in *A Policy on Geometric Design of Highways and Streets* (2004). The Town, in consultation with the NYSDOT, should consider the available guidelines and formulate a set of requirements appropriate to roads within the Town of Poughkeepsie.

Table B.1 – Sample Access Design Standards (Arterial Roadway)

Design Standard	Posted or Design Speed (miles per hour)			
	25 mph	30 mph	40 mph	50 mph
Spacing in feet*				
Sight distance looking right	195	205	315	446
Sight distance looking left	175	200	289	405
Distance between unsignalized driveways/roadways	105	125	185	330

*Adapted from *Access Management Manual*, Transportation Research Board, 2003

Recommendation: Incentives

The Town should explore some zoning provisions that offer incentives to developers for particularly beneficial design within the Fairview Center area.

Incentives incorporated into the development approval process can take a number of forms. They can be offered at the Town's discretion. That is, the Town may offer potential bonuses or waivers to an applicant where he/she provides site design that especially promotes the fulfillment of the objectives of the Fairview Center concept and this study. The Town would set the conditions under which they might consider such bonuses or waivers. They would not be required to give a bonus or waiver, but would evaluate the appropriateness of them on a case by case basis using a set of established evaluation criteria. An example might be where a developer is allowed to locate a business sign more prominently in order to accommodate the safest possible location for the site driveway. Such incentives invite the kind of development that is consistent with the overall vision for the future of the Route 9 Corridor.

Recommendation: Zoning Code Revision Process

As the comprehensive revision process for the Poughkeepsie Zoning Code is carried through, its language should be strengthened to include the items listed above in a more comprehensive way. This would include not only additions or clarifications to the requirements for each zone (or an overlay zone) but also adding to the list of terms defined in the regulations, expanding the discussion of the criteria the Planning and Zoning Commission will use in decision-making, and ensuring that the site plan specifications include requirements for complete information relative to the issues noted above.

The Town Zoning Code does include some of the above listed provisions in some form, yet restatement, clarification, and addition to these, particularly as they relate to Route 9, would be beneficial.

Resources for Zoning Code Amendments:

Design Standards

Denver, Colorado Zoning Code. Mixed-Use Districts, Sections 59-301--59-320;
www.municode.com/resources/gateway.asp?pid=10257&sid=6
Fort Worth, Texas Zoning Code, Mixed Use Sections 4.902, Low-Density Mixed Use;
www.fortworthgov.org/csec/disclaimer.asp
Interim PAS Report ©American Planning Association, March 2006. Model Mixed-Use Zoning District Ordinance, *Model Smart Land Development Regulations*.
Maryland Infill Development Model; www.mdp.state.md.us/mgs/infill/InfillFinal_1.pdf
Town of Simsbury, Connecticut: Design Guidelines;
http://simsburyct.virtualtownhall.net/Public_Documents/Departments/SimsburyCT_Planning/index

Access Management

Draft Town Plan, Town of Poughkeepsie
American Association of State Highway and Transportation Officials, 2004. AASHTO Green Book: *A Policy on Geometric Design of Highways and Streets*, 5th Edition.
Fitzgerald & Halliday, Inc., 2000. Model Access Management Regulations
Florida Department of Transportation, 2002. Access Management Guidelines
Transportation Research Board (TRB), 2003. Access Management Manual
Creighton Manning Engineering, LLP, 2005. Route 22 Access Management Study.

Parking Standards

Dutchess County Department of Planning and Development, 2000. *Greenway Connections*
Fitzgerald & Halliday, Inc., 2003. Model Parking Regulations for Northwest Connecticut
Institute of Transportation Engineers (ITE), 2004. *Parking Generation*, 3rd Edition

Appendix C

Pedestrian Subcommittee Recommendations

Pedestrian Travel Subcommittee

The Route 9 Land Use and Transportation Study Subcommittee on Pedestrian Travel met on August 24, 2006 to accomplish two main objectives: 1) agree on a set of principles that accurately describe the current and future forces affecting pedestrian mobility and safety along the Route 9 corridor in Fairview, and 2) identify a set of conditions and recommendations that once achieved, whether independently or in unison, will improve the state of pedestrian travel in the corridor. Representatives of the Town of Poughkeepsie, Dutchess County Planning & Development, NYS Department of Transportation and Marist College participated in the meeting.

Guiding Principles

The subcommittee identified the following principles to describe the issues surrounding pedestrian travel in the study corridor:

1. The Dutchess County Greenway Guides promote walkable neighborhood centers and recommend taming traffic congestion by strictly limiting access drives, dispersing vehicles on interconnected secondary streets, and mixing land uses close together to encourage alternatives to the automobile.
2. The Town's draft Fairview Center design concepts encourage compact, pedestrian and transit oriented development that will require accommodation of both vehicle and pedestrian travel in the corridor.
3. The combination of high levels of both vehicle and pedestrian travel activity contributes to competition for "green time" at some locations (e.g. Donnelly and Fulton crossings).
4. Traffic congestion on Route 9 is primarily a function of high volumes of vehicle traffic, existing turning movements, and overall development patterns. While the presence of pedestrians is not the primary cause of vehicle congestion on Route 9, their significant numbers do contribute to increased delay within the corridor.
5. The improvements in design, enforcement and education activities made in the past three years have contributed to increased safety and more orderly activity in the corridor.
6. The distribution of pedestrian crossing activity means that a single grade-separated crossing (pedestrian overpass) could not capture all or even most existing pedestrian traffic. Crosswalks at intersections will still be necessary.
7. Providing a functional and strategically placed grade-separated crossing could enhance pedestrian convenience and safety, and may reduce delay caused by street-level traffic.
8. The development of a grade-separated pedestrian crossing will require collaboration and cooperation among NYSDOT, the Town of Poughkeepsie and Marist College. As part of this effort, serious consideration of establishing a separated crossing should be

incorporated into the Marist College master plan as it continues development of academic and residential uses on the East Campus.

Subcommittee Recommendations

The subcommittee agreed in principle to the following recommendations:

Grade Separated Pedestrian Crossing over Route 9

1. The concept of a single, grade separated pedestrian crossing over Route 9 warrants project level analysis to address location, design, and cost. Such an analysis will take place as a joint effort between the New York State Department of Transportation and Marist College, with participation from the Town of Poughkeepsie, Dutchess County, and Poughkeepsie-Dutchess County Transportation Council (the federally recognized Metropolitan Planning Organization for Dutchess County).
2. Any future pedestrian bridge must be an integral part of the Marist campus and could possibly tie into new or existing structures on both the west and east sides of Route 9. The design of the bridge must remain consistent with the design of any connecting structures; the bridge and any new connecting structures should be designed concurrently. A stand alone pedestrian bridge is not recommended unless the connections from the east and west were ramped and/or bermed with gradual slopes that facilitated convenient pedestrian access and use from both directions.
3. The funding and construction of a pedestrian bridge will require a public/private partnership between NYSDOT, Marist College, and possible federal sources.
4. The pedestrian bridge and any supporting structures must sit at a location that will serve the greatest number of pedestrians. The foremost potential location is north of Donnelly Hall on the Marist College west campus, across Route 9 to the area south of Fulton Street and west of Beck Place, approximately on line with the East Campus central pedestrian pathway.
5. The design of the pedestrian bridge must be sensitive to the surrounding architecture and be compatible with the National Register historic area.

Access Management Strategies

1. Improvements to internal traffic circulation patterns and vehicle parking at Marist College could make it more appealing for motorists to use the north and south entrances to access the west campus. Having fewer vehicles use the main entrance would reduce the number of pedestrian-vehicle conflicts at the congested Fulton Street intersection.
2. These improvements might entail a better north-south road connection on the west campus, which would entice motorists to use the College's north and south entrances and thus avoid the Fulton Street portion of Route 9; such a connection should also shift vehicles away from pedestrian activity centers.

3. Any building and circulation improvements should be integrated into the concepts presented in the Marist College Master Plan.
4. Access management improvements at the Mid-Hudson Plaza should also include improved circulation patterns that reduce the appeal of using Fulton Street to access Route 9; such improvements should focus on reducing the number of vehicles making left-turns from Fulton Street onto Route 9 southbound.

Traffic Calming

In order to reduce the speed of vehicles through the corridor, appropriate traffic calming techniques (e.g. median plantings, street trees, and shortened, textured crosswalks) should be investigated and used to the greatest extent possible along Route 9. Eliminating the right turn only lane from Route 9 northbound onto Fulton Street should be pursued, especially since there is already a no turn on red prohibition at the intersection.

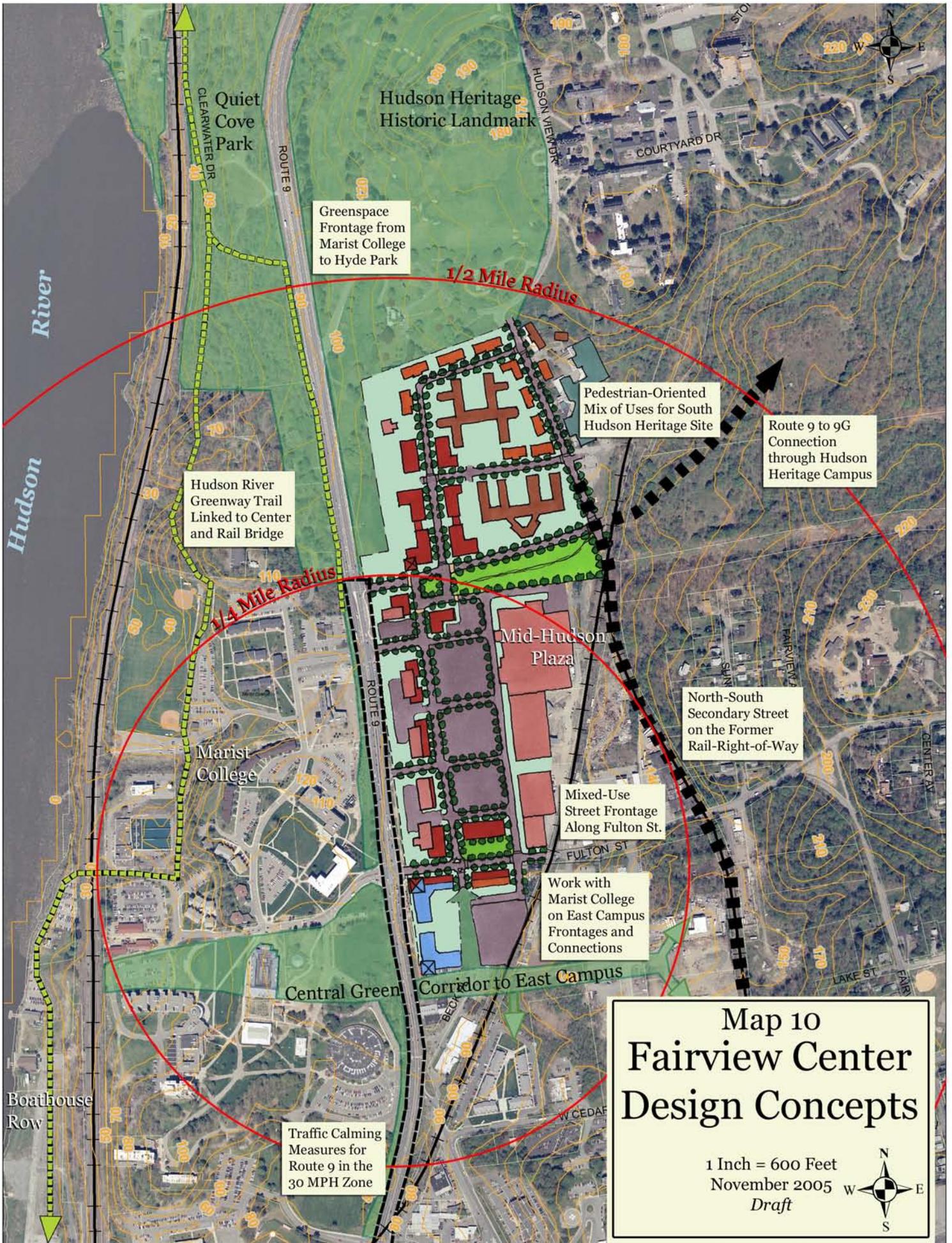
Fairview Transit Options

Consideration should be made to implement a Fairview oriented transit service (i.e. shuttle) that connects the corridor's major activity centers – Marist College, Hudson Heritage, Mid-Hudson Plaza and, on a seasonal basis, Quiet Cove Park. The shuttle service could also provide connections to nearby transit centers such as the Poughkeepsie Train Station and the planned City of Poughkeepsie Transit Hub. The shuttle should provide high frequency, all day service with fixed time intervals between stops, with the possibility of operating on dedicated bus lanes.

Note: The principles and recommendations from the subcommittee were presented to the Advisory Committee on September 19, 2006 and subsequently incorporated into the project recommendations and Concept Plan.

Appendix D

Fairview Center Design Concept



Hudson Heritage
Historic Landmark

Quiet
Cove
Park

Greenspace
Frontage from
Marist College
to Hyde Park

1/2 Mile Radius

Pedestrian-Oriented
Mix of Uses for South
Hudson Heritage Site

Route 9 to 9G
Connection
through Hudson
Heritage Campus

Hudson River
Greenway Trail
Linked to Center
and Rail Bridge

1/4 Mile Radius

Mid-Hudson
Plaza

North-South
Secondary Street
on the Former
Rail-Right-of-Way

Marist
College

Mixed-Use
Street Frontage
Along Fulton St.

Work with
Marist College
on East Campus
Frontages and
Connections

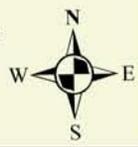
Central Green
Corridor to East Campus

Boathouse
Row

Traffic Calming
Measures for
Route 9 in the
30 MPH Zone

Map 10 Fairview Center Design Concepts

1 Inch = 600 Feet
November 2005
Draft



Final Concept Plan

Route 9 Land Use and Transportation Study
Town of Poughkeepsie, New York



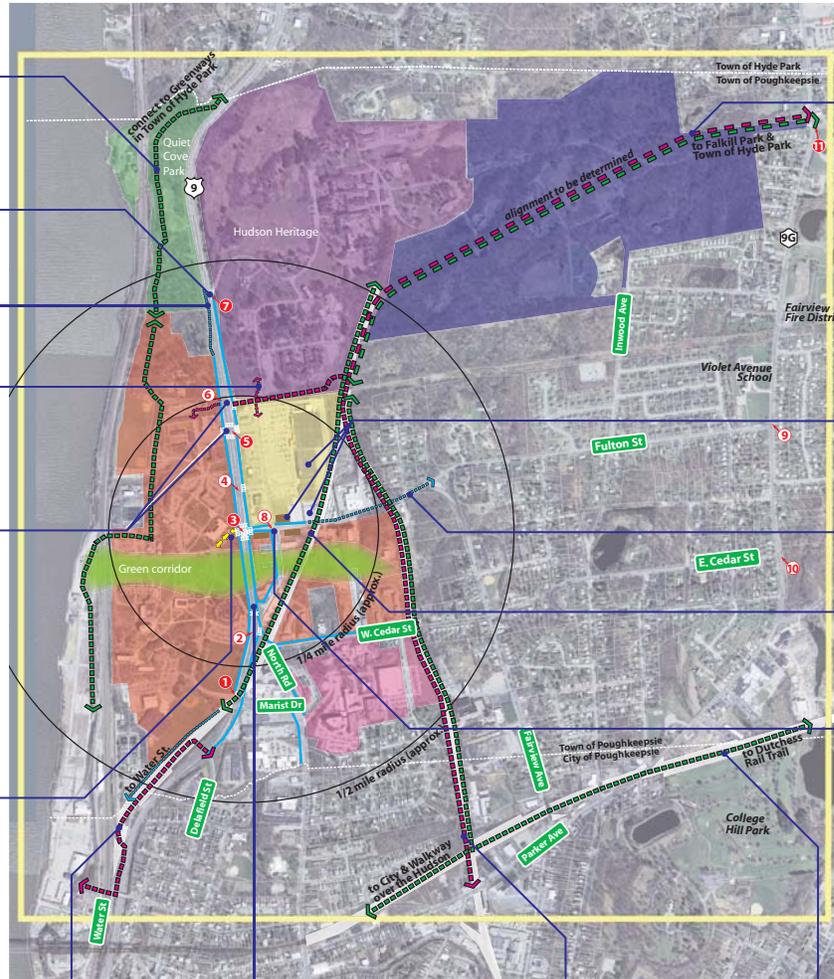
KEY:

Recommendation
Next steps

Recommendation categories:

- FC = Fairview Center
- LD = Future land development
- TR = Transit and road projects
- PI = Pedestrian improvements
- AM = Access management and operation improvements

- PI-4** Build a continuous Hudson River Greenway trail along the waterfront in Poughkeepsie and Hyde Park.
Continue development of path by establishing/acquiring right-of-way/easements.
- AM-2** Align new entrance to Hudson Heritage and Quiet Cove Park.
Conduct an engineering analysis to determine appropriate location based on topography.
- PI-2** Construct sidewalk and/or separated path on west side of Route 9 from Marist North Gate to Quiet Cove Park.
Town/NYS DOT/County develop project scope, cost, and schedule.
- FC-1** Establish direct connection between Mid-Hudson Plaza and Hudson Heritage east of Winslow Gate traffic signal.
Negotiate with property owners as part of development approval process.
- AM-1** Realign Marist North Gate intersection to Winslow Gate traffic signal at entrance to Hudson Heritage and Mid-Hudson Plaza; maintain right-in/right-out movements at existing Mid-Hudson Plaza driveway.
Coordinate with analysis of Route 9-Route 9G Connector, and/or new development proposals.
- AM-3** Reconfigure Marist Main Gate to eliminate outbound traffic to reduce overall vehicle volumes at Route 9/Fulton St. intersection (will require change in internal circulation on Marist west campus).
Complete analysis of potential impacts and preferred intersection changes.



- TR-1** Design and construct new public road between Route 9 and Route 9G through former HRPC.
Conduct study to determine preferred alignment and intersection on Route 9.
- FC-3** Require new uses and site development to be consistent with Fairview Center concept in terms of location, use, scale, and design. The reuse of existing vacant buildings and potential development of Fulton Street frontage are particularly important.
Market the ability of mixed-use projects to decrease vehicle trips. Educate applicable Town of Poughkeepsie planning and zoning board members and apply appropriate regulations to project applications.
- PI-6** Extend sidewalks on north side of Fulton Street east to Route 9G.
Develop project scope, cost, and schedule.
- PI-3** Construct multi-use trail on CSX West Branch.
Pursue engineering analysis of multi-use trail (no vehicle access).
- AM-4** Redesign access to Mid-Hudson Plaza from Fulton Street to prohibit eastbound left-turns (entering plaza) until main access can be constructed further east.
Pursue through developer mitigation or as part of redesign of Route 9/Fulton Street intersection.

AM-5 Examine potential use of a portion of the CSX West Branch for Route 9 access to former Dutton Lumber site in City of Poughkeepsie.
Conduct engineering analysis.

PI-1 Design and construct pedestrian bridge over Route 9 between Fulton St. and Beck Place to link Marist College west and east campus complexes. Remove Donnelly Hall pedestrian crossing; maintain at-grade crossings at other signalized intersections.
NYS DOT, Marist College, and Town of Poughkeepsie continue to progress project.

TR-2 Establish new local road along CSX East Branch between Hudson Heritage and West Cedar St. (or Parker Ave.). Road profile must accommodate pedestrians and bicyclists.
Pursue engineering analysis of road alignment.

PI-5 Use main CSX right-of-way for non-motorized, multi-use trail connection to Dutchess Rail Trail at Morgan Lake and to Walkway Over the Hudson
Pursue engineering analysis of multi-use trail

FC-2 Develop and implement appropriate traffic calming measures that reinforce posted speed limits or reduce operating speeds on Route 9 between Hyde Park Town line and Marist Drive, including a gateway treatment and speed limit reduction (30 mph) near Quiet Cove Park.
Work with NYSDOT and/or developers as appropriate.

AM-6 Deploy Emergency Vehicle Signal Preemption technology at major intersections along the Route 9 corridor, with Route 9/Fulton Street as the first priority.
Identify appropriate technologies and locations for deployment in conjunction with State and County emergency response programs.

TR-3 Expand public transit service between Fairview and nearby activity centers in the City of Poughkeepsie.
Identify potential riders and routes as part of the upcoming Dutchess County Transit Development Plan.

PI-7 Maintain pedestrian safety and enforcement activities.

LD-1 Enact and enforce land use regulations through zoning and site plan reviews that are sensitive to the relative impact of different types of land uses on traffic, with particular attention to the impacts at the Rt. 9/Fulton St. intersection.
Ensure new Town Zoning Code is consistent with Fairview Center Concept and project objectives.

LD-2 Coordinate with the Town of Hyde Park, City of Poughkeepsie, and others to identify and address cumulative impacts of development through coordinated mitigation strategies.
Town cooperates with County/PDCTC/ NYSDOT to carryout coordinated review of projects.

<ul style="list-style-type: none"> Study Area Existing crosswalk Existing sidewalks Potential sidewalk extensions Potential new roadway Potential greenway connection 	<ul style="list-style-type: none"> Unsignalized intersection Signalized intersection Railroad corridor Parkland <p>Radial distances are in relation to Fairview Center as described in the Town Plan.</p>	<p>PARCEL OWNERSHIP:</p> <ul style="list-style-type: none"> Marist College New York State Hudson Heritage Development, LLC St. Francis Hospital Inland Management (Mid-Hudson Plaza)
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0 1,000 2,000
Approximate scale in feet



Route 9 Land Use and Transportation Study Final Recommendations Matrix

Issue/Goal	Recommendation	Next Steps	Responsibilities	Schedule	Funding Source/ Cost Estimate	Key to Concept Plan
Fairview Center <i>Support creation of Fairview Center in Poughkeepsie consistent with the Town Plan.</i>	Establish direct connection between Mid-Hudson Plaza and Hudson Heritage east of Winslow Gate traffic signal.	Negotiate with property owners as part of development approval process.	Town and Hudson Heritage, in cooperation with Inland Management	Short-term	Developer funded as part of mitigation	FC-1
	Develop and implement appropriate traffic calming measures that reinforce posted speed limits or reduce operating speeds on Route 9 between Hyde Park Town line and Marist Drive, including a gateway treatment and speed limit reduction (30 mph) near Quiet Cove Park. ¹	Work with NYSDOT and/or developers as appropriate.	NYSDOT, Town, and private developers	On-going	Public (e.g. TIP or Enhancements Program) and/or developer funded	FC-2
	Require new uses and site development to be consistent with Fairview Center concept in terms of location, use, scale, and design. The reuse of existing vacant buildings and potential development of Fulton Street frontage are particularly important.	Market the ability of mixed-use projects to decrease vehicle trips. Educate applicable Town of Poughkeepsie planning and zoning board members and apply appropriate regulations to project applications.	Town and private developers	On-going	NA	FC-3
Future Land Development <i>Ensure future development supports creation of the Fairview Center and mitigates negative impacts on transportation facilities in the corridor.</i>	Enact and enforce land use regulations through zoning and site plan reviews that are sensitive to the relative impact of different types of land uses on traffic, with particular attention to the impacts at the Rt. 9/Fulton St. intersection.	Ensure new Town Zoning Code is consistent with Fairview Center Concept and project objectives.	Town	Short-term	NA	LD-1
	Coordinate with the Town of Hyde Park, City of Poughkeepsie, and others to identify and address cumulative impacts of development through coordinated mitigation strategies.	Town cooperates with County/PDCTC/NYS DOT to carryout coordinated review of projects.	Town, NYSDOT, PDCTC, and County	On-going	NA	LD-2
Transit and Road Projects <i>Create new connections and enhance transit service to increase transportation choices and distribute trips more effectively.</i>	Design and construct new public road between Route 9 and Route 9G through former HRC.	Conduct study to determine preferred alignment and intersection on Route 9.	NYSDOT, PDCTC, Town, City, NYS Office of Mental Health, Hudson Heritage, and County	Long-term	Public/private: \$750,000 for environmental study and preliminary design ²	TR-1
	Establish new local road along CSX East Branch between Hudson Heritage and West Cedar St. (or Parker Ave.). Road profile must accommodate pedestrians and bicyclists.	Pursue engineering analysis of road alignment.	PDCTC, County, Town, and City in cooperation with Hudson Heritage	Long-term	Public/private: \$250,000 for environmental study and preliminary design ³	TR-2
	Expand public transit service between Fairview and nearby activity centers in the City of Poughkeepsie.	Identify potential riders and routes as part of the upcoming Dutchess County Transit Development Plan.	County, City, Town, and PDCTC	Mid-term	Include in upcoming PDCTC study	TR-3
Pedestrian Improvements <i>Enhance pedestrian facilities in the Corridor to improve safety and mobility.</i>	Design and construct pedestrian bridge over Route 9 between Fulton St. and Beck Place to link Marist College west and east campus complexes. Remove Donnelly Hall pedestrian crossing; maintain at-grade crossings at other signalized intersections.	NYSDOT, Marist College, and Town of Poughkeepsie continue to progress project.	Marist College and NYSDOT, in cooperation with Town of Poughkeepsie, Dutchess County, and PDCTC	Mid-term	NYSDOT and Marist College: \$3+ million	PI-1
	Construct sidewalk and/or separated path on west side of Route 9 from Marist North Gate to Quiet Cove Park.	Town, NYSDOT, and County develop project scope, cost, and schedule.	Town, NYSDOT, and County	Short-term	Public: \$150,000 for design and construction ⁴	PI-2
	Construct multi-use trail on CSX West Branch.	Pursue engineering analysis of multi-use trail (no vehicle access).	PDCTC, County, and Town in cooperation with Hudson Heritage and Marist College	Long-term	\$100,000 for preliminary and final design	PI-3
	Build a continuous Hudson River Greenway trail along the waterfront in Poughkeepsie and Hyde Park.	Continue development of path by establishing/acquiring right-of-way/easements.	County, Towns, and City	On-going	Public: \$300,000-\$500,000 per mile	PI-4
	Use main CSX right-of-way for non-motorized, multi-use trail connection to Dutchess Rail Trail at Morgan Lake and to Walkway Over the Hudson	Pursue engineering analysis of multi-use trail	County	Long-term	Public: Cost unknown	PI-5
	Extend sidewalks on north side of Fulton Street east to Route 9G.	Develop project scope, cost, and schedule.	Town and NYSDOT	Short-term to Mid-term	Public: \$200 per foot for design and construction	PI-6
	Maintain pedestrian safety and enforcement activities.	NA	Marist College and Town	On-going	NA	PI-7
Access Management and Operational Improvements <i>Modify existing driveways and intersections to improve vehicle and pedestrian movements.</i>	Realign Marist North Gate intersection to Winslow Gate traffic signal at entrance to Hudson Heritage and Mid-Hudson Plaza; maintain right-in/right-out movements at existing Mid-Hudson Plaza driveway.	Coordinate with analysis of Route 9-Route 9G Connector, and/or new development proposals.	Town, NYSDOT, Hudson Heritage, and Marist College	Mid-term	Public/private: \$500,000 – \$1 million	AM-1
	Align new entrance to Hudson Heritage and Quiet Cove Park.	Conduct an engineering analysis to determine appropriate location based on topography.	Town, County, Hudson Heritage, NYSDOT, and NYS Historic Preservation Office	Mid-term	Public/private Costs TBD	AM-2
	Reconfigure Marist Main Gate to eliminate outbound traffic to reduce overall vehicle volumes at Route 9/Fulton St. intersection (will require change in internal circulation on Marist west campus).	Complete analysis of potential impacts and preferred intersection changes.	Marist College and NYSDOT	Mid-term to Long-term	Costs TBD	AM-3
	Redesign access to Mid-Hudson Plaza from Fulton Street to prohibit eastbound left-turns (entering plaza) until main access can be constructed further east.	Pursue through developer mitigation or as part of redesign of Route 9/Fulton Street intersection.	Town, in cooperation with property owner(s)	Mid-term (dependent on development in plaza)	Costs TBD	AM-4
	Examine potential use of a portion of the CSX West Branch for Route 9 access to former Dutton Lumber site in City of Poughkeepsie.	Conduct engineering analysis	City, NYSDOT, and developer	Mid-term	Developer funded	AM-5
	Deploy Emergency Vehicle Signal Preemption technology at major intersections along the Route 9 corridor, with Route 9/Fulton Street as the first priority.	Identify appropriate technologies and locations for deployment in conjunction with State and County emergency response programs.	NYSDOT, County, and Town.	Short-term to Mid-term	Public: \$8,000 per intersection; \$2,000 per vehicle (upper end)	AM-6

Schedule definitions: Short-term = 0-5 years, Mid-term = 5-10 years, Long-term = over 10 years

¹ Please refer to the Final Technical Report and the NYSDOT Highway Design Manual (Ch. 25) for descriptions of appropriate traffic calming measures.

² Approximately 1.5 miles total length: 2 lanes, \$3.5 million per lane-mile; 7 percent of total cost for environmental study and preliminary design.

³ Approximately 0.5 miles (Rt. 9-Rt. 9G connector to W. Cedar St.): 2 lanes, \$3.5 million per lane-mile; 7 percent of total cost for environmental study and preliminary design. (Extension to Parker Ave. would add approximately 0.5 miles, which would double the total cost.)

⁴ Route 9 sidewalk extension to Quiet Cove Park entrance: approximately 750 feet, \$200 per foot.