

COHOES AND WATERVLIT, NEW YORK

COOPERATION AND CONSOLIDATION STUDY OF FIRE SERVICES IN COHOES AND WATERVLIT

DATA REPORT

NOVEMBER 2010

The logo for MMA Consulting Group, Inc. is a stylized circular emblem composed of six light purple geometric shapes: four squares and two diamonds. The squares are positioned at the top-left, top-right, bottom-left, and bottom-right, while the diamonds are at the top and bottom. The company name and address are centered within this emblem.

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COOPERATION AND CONSOLIDATION STUDY PRELIMINARY DATA REPORT

SUMMARY

This document is part of the process for the development of the *Cooperation and Consolidation Study of Fire Services in Cohoes and Watervliet*. The study is designed to examine the feasibility of sharing, merging, or consolidating fire and rescue services provided by the Cohoes and Watervliet Fire Departments. This report includes data on each City and each Fire Department. A series of computer maps, and the data associated with each map, is also presented. Several exhibits include information associated with the Town/Village of Green Island, since the Green Island Fire Department is an active participant in the Watervliet and Cohoes response system.

The exhibits and maps in this document are listed below.

- Exhibit 1 City of Cohoes and City of Watervliet Population
- Exhibit 2 Cohoes and Watervliet Area in Square Miles
- Exhibit 3 City of Cohoes and City of Watervliet Population Density
- Exhibit 4 Town/Village of Green Island Population
- Exhibit 5 City of Cohoes, City of Watervliet, and the Town/Village of Green Island Population and Area
- Exhibit 6 Cohoes Authorized Fire Department Personnel
- Exhibit 7 City of Watervliet Authorized Fire Department Personnel
- Exhibit 8 Cohoes Fire Department and Watervliet Fire Department Total Personnel
- Exhibit 9 Cohoes Fire Department and Watervliet Fire Department Summary of Responses
- Exhibit 10 Cohoes Fire Department Responses - 2006, 2007, and 2008
- Exhibit 11 Watervliet Fire Department Responses - 2006, 2007, and 2008
- Exhibit 12 Cohoes Fire Department and Watervliet Fire Department Average Number of Responses by Month - 2006, 2007, and 2008
- Exhibit 13 Cohoes Fire Department and Watervliet Fire Department Emergency Medical Service Responses
- Exhibit 14 Cohoes Fire Department Budget - 2007 to 2011
- Exhibit 15 Watervliet Fire Department Budget - 2007 to 2011
- Exhibit 16 Cohoes Fire Department and Watervliet Fire Department Budgets - 2007 to 2011

- Exhibit 17 Cohoes Fire Department and Watervliet Fire Department - 2010 Budget Comparison
- Exhibit 18 Cohoes Fire Department and Watervliet Fire Department Retirement and Health Insurance Costs - 2007 to 2010
- Exhibit 19 List of Computer Maps
- Exhibit 20 Travel Time within Cohoes from Cohoes Island Fire Station
- Exhibit 21 Travel Time within Cohoes from Cohoes Central Fire Station
- Exhibit 22 Travel Time within Cohoes from Cohoes Hill Fire Station
- Exhibit 23 Travel Time within Watervliet from Headquarters Fire Station
- Exhibit 24 Travel Time within Green Island from Green Island Fire Station
- Exhibit 25 Benefits of Consolidation of the Cohoes and Watervliet Fire Departments
- Exhibit 26 Estimated Cost Savings Resulting from Consolidation
- Exhibit 27 Estimated Cost Savings and Net Revenue
- Exhibit 28 Cost Allocation Assumptions
- Exhibit 29 Cost Allocation Based on 2010 Budget
- Exhibit 30 Cost Reallocation Based on Cost Reduction and Revenue Increase

The computer maps in this document are:

- Map 1 Travel Time within Cohoes from Cohoes Island Fire Station
- Map 2 Travel Time within Cohoes from Cohoes Central Fire Station
- Map 3 Travel Time within Cohoes from Cohoes Hill Fire Station
- Map 4 Travel Time within Watervliet from Headquarters Station
- Map 5 Travel Time within Green Island from Green Island Fire Station
- Map 6 Travel Time Coverage from Five Existing Stations

COHOES AND WATERVLIET POPULATION AND POPULATION DENSITY

The population trends within each City and the density of population have a direct effect on fire and rescue service needs. Exhibit 1 shows the population of both Cities in 1990 and 2000. The sources of these data are the U. S. Census, City web sites, master plans, and population estimates used by real estate companies. Cohoes and Watervliet have had declining populations.

EXHIBIT 1
CITY OF COHOES AND CITY OF WATERVLIET POPULATION
1990 & 2000

YEAR	COHOES	% INCREASE/DECREASE	WATERVLIET	% INCREASE/DECREASE	TOTAL
1990	16,825		11,061		27,886
2000	15,521	(7.8%)	10,257	(7.7%)	25,778

Exhibit 2 shows the size of each City in square miles. The Cities encompass 5.7 square miles, 5.0 miles of which is land area. Exhibit 3 shows the population density of the Cities. Watervliet has a population density of 9,686 per square mile and Cohoes has a population density of 4,081 per square mile.

EXHIBIT 2
COHOES AND WATERVLIET AREA IN SQUARE MILES

	COHOES	WATERVLIET	TOTAL
Land	3.7	1.3	5.0
Water	0.5	0.2	0.7
Total Square Miles	4.2	1.5	5.7

EXHIBIT 3
CITY OF COHOES AND CITY OF WATERVLIET POPULATION DENSITY

YEAR	COHOES POPULATION	POP. DENSITY PER SQ. MI.	WATERVLIET POPULATION	POP. DENSITY PER SQ. MI.
1990	16,825	4,547	11,061	8,508
2000	15,521	4,195	10,257	7,890

The Town/Village of Green Island is an active response partner with the Watervliet and Cohoes Fire Departments. In addition, the Green Island Fire Department and the Watervliet Fire Department share an apparatus. The population of the Town/Village of Green Island and characteristics of the Green Island Fire Department have to be considered in an analysis of the consolidation of the Cohoes and Watervliet Fire Departments, since Green Island is part of the automatic aid

system. Exhibit 4 displays the population of Green Island from 1990 to 2000. Exhibit 5 combines data from Green Island, Cohoes, and Watervliet. (See computer mapping exhibits.)

EXHIBIT 4
TOWN/VILLAGE OF GREEN ISLAND POPULATION
1990 AND 2000

	GREEN ISLAND	% INCREASE/DECREASE
1990	2,490	
2000	2,278	(.5%)

EXHIBIT 5
CITY OF COHOES, CITY OF WATERVLLET AND
TOWN/VILLAGE OF GREEN ISLAND POPULATION AND AREA

JURISDICTION	2000 POPULATION	AREA IN SQUARE MILES
Cohoes	15,421	4.2
Green Island	2,529	1.5
Watervliet	10,257	0.9
Total	28,207	6.6

COHOES FIRE DEPARTMENT AND WATERVLLET FIRE DEPARTMENT

Exhibits 6 to 10 describe the staffing, rank structure, and fire and rescue service demand in the Cities of Cohoes and Watervliet. Exhibit 6 shows the number of personnel by rank within the Cohoes Fire Department. Exhibit 7 displays the staffing in Watervliet.

EXHIBIT 6
COHOES AUTHORIZED FIRE DEPARTMENT PERSONNEL

POSITION	TOTAL STAFFING
Fire Chief	1
Captain	4
Lieutenant	4
Firefighter	27
Total	36*

* Fire officers and firefighters are required to be Emergency Medical Technicians (EMT-B).

EXHIBIT 7
WATERVLIIET AUTHORIZED FIRE DEPARTMENT PERSONNEL

POSITION	TOTAL STAFFING
Fire Chief	1
Battalion Chief*	1
Captain*	5
Lieutenant	2
Firefighter	17
Total	26**

* The Department rank structure is in the processes of being altered.

**Fourteen of the company officers and firefighters are paramedics (EMT-Ps); other personnel are EMT-Bs).

Exhibit 8 combines the information from Exhibits 6 and 7, and shows the total number of fire department personnel in Cohoes and Watervliet.

EXHIBIT 8
TOTAL PERSONNEL
COHOES FIRE DEPARTMENT AND WATERVLIIET FIRE DEPARTMENT

POSITION	TOTAL STAFFING
Fire Chief	2
Battalion Chief	1
Captain	9
Lieutenant	6
Firefighter/EMT	44
Total	62

Both Departments operate with a four-platoon (shift or group) system. The Watervliet Fire Department deploys five personnel daily and the Cohoes Fire Department deploys five or six persons daily. The departments' workforce characteristics differ, since the Watervliet Fire Department provides ambulance transport services at the advanced life support (ALS) level. Fourteen of its personnel are paramedics (EMT-Ps).

The Cohoes Fire Department operates three primary emergency response apparatus: two engines and a ladder. The Watervliet Fire Department operates an engine, a tower/ladder, and two ambulances.

Exhibit 9 shows the number of Cohoes and Watervliet Fire Department responses in 2006, 2007, 2008, and 2009. The exhibit also shows the average total number of responses during that time period for each Fire Department. The average number of calls for the four-year period was 4,807. It should be noted that the Green Island Fire Department responds to approximately 500 calls annually.

Exhibit 10 shows the responses by the Cohoes Fire Department, by month, in 2006, 2007, and 2008. Exhibit 11, shows the responses by month, for the Watervliet Fire Department.

The data for Exhibits 9, 10, and 11 are from the New York Office of Fire Prevention and Control. Data for 2009 are not available.

EXHIBIT 9
COHOES FIRE DEPARTMENT AND WATERLIET FIRE DEPARTMENT
SUMMARY OF RESPONSES - 2006, 2007, 2008, AND 2009

	COHOES	WATERLIET	TOTAL
2006	2,772	1,609	4,381
2007	3,029	1,857	4,886
2008	3,123	1,847	4,970
2009	3,141	1,851	4,992
Four-Year Average	3,026	1,791	4,807

EXHIBIT 10
COHOES FIRE DEPARTMENT RESPONSES
2006, 2007, AND 2008

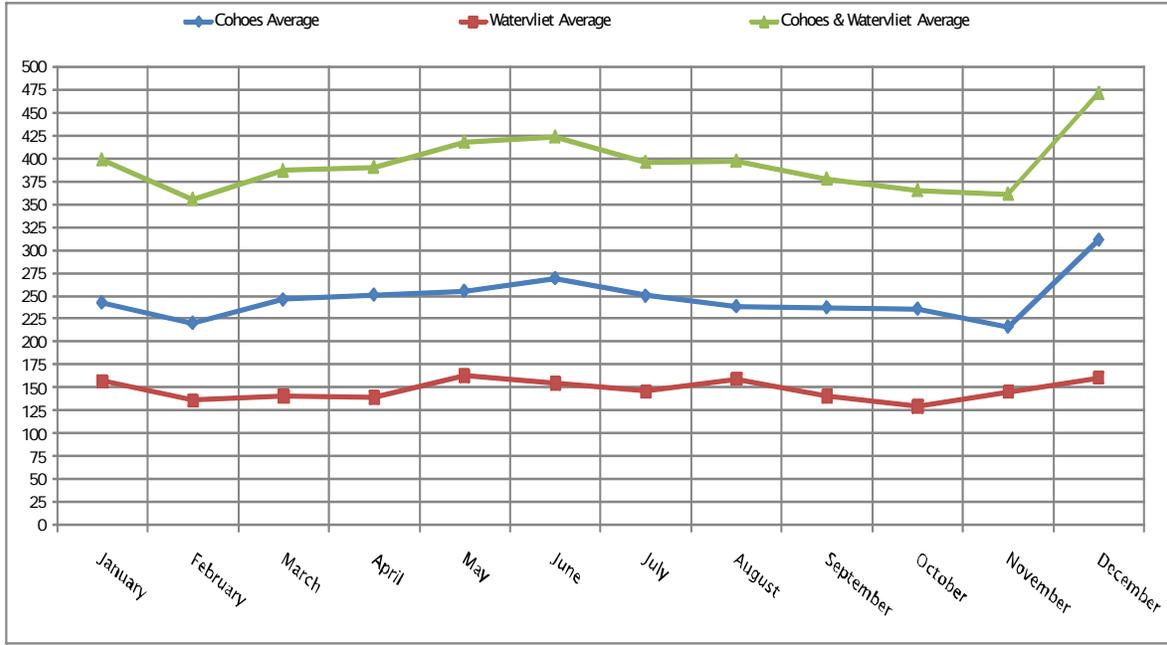
MONTH	2006	2007	2008	AVERAGE
January	249	249	229	242
February	206	250	204	220
March	234	244	261	246
April	246	242	266	251
May	215	295	257	256
June	238	287	283	269
July	234	265	252	250
August	219	255	241	238
September	227	237	248	237
October	244	229	234	236
November	221	215	213	216
December	239	261	435	312
Total	2,772	3,029	3,123	2,975

EXHIBIT 11
WATERVLIET FIRE DEPARTMENT RESPONSES

	2006	2007	2008	AVERAGE
January	130	179	161	157
February	129	128	151	136
March	147	131	144	141
April	123	148	147	139
May	149	150	189	163
June	153	147	164	155
July	124	169	144	146
August	146	188	144	159
September	131	157	134	141
October	116	146	126	129
November	140	155	141	145
December	121	159	202	161
Total	1,609	1,857	1,847	1,771

Exhibit 12 is a line graph which shows the average number of monthly responses for 2006, 2007, and 2008 for the Cohoes and Watervliet Fire Departments. The red line represents responses made by the Watervliet Fire Department; the blue line represents responses made by the Cohoes Fire Department; and the green line shows the total number of responses for both departments.

EXHIBIT 12
COHOES FIRE DEPARTMENT AND WATERVLIIET FIRE DEPARTMENT
AVERAGE NUMBER OF RESPONSES BY MONTH
2006, 2007, AND 2008



Each Fire Department responds to emergency medical service calls. Watervliet responds at the ALS level, employs 14 paramedics, and transports patients. The Cohoes Fire Department requires all personnel to be emergency medical technicians and provides first responder service. In the City of Cohoes, ambulance transport services are provided by a private ambulance company. The City of Cohoes does not pay any costs for ambulance transport services; however, the Cohoes Fire Department participates in the delivery of emergency medical services by providing basic life support services. In 2009, the City of Watervliet responded to 1,122 EMS incidents (928 required transport of a patient) and Cohoes responded to 2,182 EMS incidents. Exhibit 13 shows the number of EMS responses and the percentage of EMS responses in relation to the total number of responses in 2009.

EXHIBIT 13
COHOES FIRE DEPARTMENT AND WATERVLIIET FIRE DEPARTMENT
EMERGENCY MEDICAL SERVICE RESPONSES IN 2009

	EMS RESPONSES	TOTAL RESPONSES	EMS RESPONSES AS A PERCENT OF TOTAL RESPONSES
Cohoes	2,182	3,141	69%
Watervliet	1,122 (928 transports)	1,851	61%
Total	3,304	4,992	63%

The Watervliet Fire Department transports a patient on approximately 83 percent of its responses. The Department received \$304,000 in revenue during 2009 for EMS services. Approximately 58 percent of EMS responses were for basic life support (BLS) services and 43 percent of responses were for advanced life support (ALS) services. If the Cohoes Fire Department provides ambulance transport, it can be assumed that at least 70 percent of responses (approximately 1,527 responses) would require transport services. If we assume that collection levels for the Cohoes Fire Department would be the same as for Watervliet, the annual revenue generated by Cohoes would be approximately \$450,000. If the transport rate in Cohoes was similar to the transport rate in Watervliet, the number of ambulance transports would be greater and the revenue would increase.

Cohoes and Watervliet budgeted approximately \$4.7 million for fire and rescue services in 2010, and \$4.8 million in 2011. The expenditures and budgets for the Cohoes Fire Department for 2007 to 2011 are shown in Exhibit 14. The Watervliet Fire Department expenditures and budgets for 2007 to 2011 are shown in Exhibit 15.

EXHIBIT 14
COHOES FIRE DEPARTMENT BUDGET - 2007 TO 2011

CATEGORY	2007	2008	2009	2010	2011*
Personal Services	2,515,874	2,576,617	2,790,513	2,744,950	2,727,810
Equipment & Capital	19,150	22,600	71,384	65,000	17,500
Contractual Expenses	135,861	118,176	119,484	109,774	110,160
	2,670,885	2,717,393	2,981,382	2,919,724	2,855,470
Annual Percent Increase/Decrease		1.7%	9.7%	(2.1%)	(2.2%)

**Proposed budget*

EXHIBIT 15
WATERVLIET FIRE DEPARTMENT BUDGET - 2007 TO 2011

	2007	2008	2009	2010	2011*
Personal Services	1,497,431	1,408,701	1,780,705	1,662,250	1,865,435
Equipment & Capital	0	78,086	33,777	20,000	5,000
Contractual Expenses	157,818	166,444	187,671	134,500	120,700
	1,655,248	1,653,231	2,002,154	1,816,750	1,991,135
Annual Percent Increase/Decrease		(0.12%)	21.1%	(9.3%)	9.6%

**Proposed budget*

EXHIBIT 16
COHOES FIRE DEPARTMENT AND WATERVLIET FIRE DEPARTMENT BUDGETS - 2007 TO 2011

BUDGET YEAR	CATEGORY	COHOES	WATERVLIET	TOTAL
2007	Personal Services	2,515,874	1,497,431	4,013,305
	Equipment & Capital	19,150	0	19,150
	Contractual Expenses	135,861	157,818	293,679
		2,670,885	1,655,248	4,326,134
2008	Personal Services	2,576,617	1,408,701	3,985,318
	Equipment & Capital	22,600	78,086	100,686
	Contractual Expenses	118,176	166,444	286,620
		2,717,393	1,653,231	4,372,624
2009	Personal Services	2,790,513	1,780,705	4,571,219
	Equipment & Capital	71,384	33,777	105,162
	Contractual Expenses	119,484	187,671	307,155
		2,981,382	2,002,154	4,983,535
2010	Personal Services	2,744,950	1,662,250	4,407,200
	Equipment & Capital	65,000	20,000	85,000
	Contractual Expenses	109,774	134,500	24,4274
		2,919,724	1,816,750	4,736,474
2011*	Personal Services	2,727,810	1,865,435	4,593,245
	Equipment & Capital	17,500	5,000	22,500
	Contractual Expenses	110,160	120,700	230,860
		2,855,470	1,991,135	4,846,605

**Proposed budget*

EXHIBIT 17**COHOES FIRE DEPARTMENT AND WATERVLIIET FIRE DEPARTMENT 2010 BUDGET COMPARISON**

CITY	2010 BUDGET	2000 ESTIMATED POPULATION	PER CAPITA COST	TOTAL RESPONSES
Cohoes	2,919,724	15,521	188	3,141
Watervliet	1,816,750	10,257	177	1,851
Total	4,736,474	25,778	184	4,992

EXHIBIT 18**COHOES FIRE DEPARTMENT AND WATERVLIIET FIRE DEPARTMENT
RETIREMENT AND HEALTH INSURANCE COSTS - 2007 TO 2010**

	COHOES FIRE DEPARTMENT		WATERVLIIET FIRE DEPARTMENT	
	HEALTH INSURANCE	RETIREMENT	HEALTH INSURANCE	RETIREMENT
2009	414,000	401,000	232,000	221,613
2010	460,000	567,000	236,000	312,917
			266,000	370,277

COMPUTER MAPPING

The consultants conducted a computer mapping analysis of the response capability of the Cohoes Fire Department and the Watervliet Fire Department to assess fire station location, staffing, and fire and EMS response capability. Incidental to this analysis, we also developed computer mapping associated with the Green Island Fire Department. The computer analysis required the consultants to review maps of each jurisdiction, examine transportation networks, conduct site visits to the stations, and review data.

Response coverage provided by the three existing fire stations in Cohoes, the fire station in Watervliet, and the fire station in Green Island was analyzed using the consultant's computer mapping capabilities. The computer mapping model analyzes the travel distances that can be achieved by fire units leaving fire stations and responding throughout a geographic area within a given time, assuming defined average response speeds. The color-coded maps presented in this report are designed to illustrate the response from each station.

The mapping methodology consists of the following steps:

- ▶ Prepare a digitized base map representation of the street and highway network in the jurisdictions.
- ▶ Locate the fire stations to be analyzed with respect to that network.
- ▶ Assign appropriate road speeds to reflect reasonable response expectations.
- ▶ Generate a map indicating travel time from the emergency response stations in time increments to the borders of the community.

The street network is based on TIGER files from the United States Census Bureau. The resulting digitized street network was used in the computer mapping analysis to determine travel times to various points in each City from the emergency response stations. In order to do this, the longitude and latitude of the fire station location was established and inserted on the digitized street network and speed assignments were made. The TIGER files from the United States Census Bureau report data from the 2000 census.

Six response time maps displaying travel time, or response time, were developed for this report. Three maps illustrate current response coverage from each of Cohoes' three stations. One map depicts response from the Watervliet Fire Station, and one map shows response from the Green Island Station. One map depicts response from all five stations.

The maps indicate the streets covered in two-minute increments. The development of the travel time maps required the assignment of an average travel speed to roadways. The maps presented in this report have incorporated an average speed of 22 miles per hour for roadways in each jurisdiction. The speed is based on the consultants' review of road conditions and the consultants' experience with emergency response situations. It is quite possible that at some times of the day, or year, these speeds may be exceeded, or not reached, because of weather, traffic, or other conditions. The speeds are used in the emergency response model solely for planning purposes. The objective is to provide a reasonable graphical representation of time-based response coverage from different emergency response locations within each jurisdiction.

The travel time maps only depict over-the-road travel, or running, times. Two minutes for notification, dispatch, and turn-out time should be added to these

times for an estimate of total response time. This will provide a conservative estimate of response capability. Benchmarks and standards generally allow one minute or less for dispatching and one minute or less for turn-out time. For example, a four-minute travel time response represents only part of the response time to an incident. It is necessary to add two minutes to the travel time to establish the total response time. The maps show the current response capability of each Fire Department.

EXHIBIT 19
LIST OF MAPS

- Map 1 Travel Time within Cohoes from Cohoes Island Fire Station
- Map 2 Travel Time within Cohoes from Cohoes Central Fire Station
- Map 3 Travel Time within Cohoes from Cohoes Hill Station
- Map 4 Travel Time within Watervliet from Watervliet Headquarters Station
- Map 5 Travel Time within Green Island from Green Island Fire Station
- Map 6 Travel Time Coverage from Five Existing Stations

Maps 1, 2, and 3 display the coverage from each fire station in Cohoes. Map 4 shows the coverage from the Watervliet Fire Station and Map 5 shows the coverage from the Green Island Fire Station. Map 6 shows the response from all five station locations.

Computer maps graphically show the response capability of the Fire Department. The maps also generate data, which allow the comparison of the current station configuration to alternative fire station configurations. These data indicate the area (square miles), streets (miles), and estimated population (2000 U.S. Census) served by the current response system. The maps show the streets, area, and population covered in time increments by a fire unit responding to an emergency. Travel time maps present coverage in two-minute time increments. It should be noted that the 2000 U.S. Census information remains a relatively accurate measure of coverage, since there has been little change in the population of Cohoes and Watervliet.

Data displayed in the following exhibits are derived from Maps 1, 2, 3, 4, and 5. In addition, cumulative summaries indicate the total coverage within specific

time parameters. Each of the following exhibits contains two sections. The top section displays population, area, and street miles covered within each time segment. The bottom part of the exhibit shows cumulative response in minutes. Exhibits 20 to 24 display data associated with the computer maps.

Note: The maps and data displayed only depict over-the-road travel, or running, times. Two minutes for notification, dispatch, and turn-out time should be added to these times for an estimate of total response time.

Exhibit 20, *Travel Time within Cohoes from the Cohoes Island Fire Station*, presents the travel time data associated with Map 1 and displays the coverage provided with a response from the Cohoes Island Fire Station. The exhibit shows that a fire company responding from the Cohoes Island Station is able to cover 87.7 percent of the area of the City, 88.7 percent of street miles, and 89.3 percent of the population within six minutes travel time, or eight minutes total response time.

Exhibit 21, *Travel Time within Cohoes from the Cohoes Central Fire Station*, presents the travel time data associated with Map 2 and displays the coverage provided with a response from Cohoes Central Station. The exhibit shows that a fire company responding from the Cohoes Central Fire Station is able to cover 62.3 percent of the area of the City, 68.9 percent of street miles, and 66.2 percent of the population within four minutes travel time, or six minutes total response time.

Exhibit 22, *Travel Time within Cohoes from the Cohoes Hill Fire Station*, presents the travel time data associated with Map 3 and displays the coverage provided with a response from the Cohoes Hill Fire Station. Approximately 47 percent of the area of the City, 58 percent of street miles, and 46 percent of the population are covered by a response from the Cohoes Hill Fire Station within four minutes travel time.

Exhibit 23, *Travel Time within Watervliet from the Headquarters Fire Station*, presents the travel time data associated with Map 4. The map displays the coverage provided with a response from the Headquarters Station and indicates that approximately 98 percent of the area of the City, 99 percent of street miles, and 98 percent of the population are covered within four minutes travel time.

Exhibit 24, *Travel Time within Green Island from the Green Island Fire Station*, presents the travel time data associated with Map 5.

EXHIBIT 20
TRAVEL TIME WITHIN COHOES FROM THE COHOES ISLAND FIRE STATION
AREA, STREET MILES, AND POPULATION COVERED WITHIN EACH TIME SEGMENT

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT	2000 POPULATION	PERCENT
Less than 2	0.82	19.3%	18.41	30.2%	3,134	20.2%
2 to less than 4	1.44	34.0%	21.65	35.6%	5,660	36.5%
4 to less than 6	1.46	34.4%	13.91	22.9%	5,068	32.7%
6 or more	0.52	12.3%	6.90	11.3%	1,659	10.7%
Total	4.24	100.0%	60.87	100.0%	38,889	100.0%

AREA, STREET MILES, AND POPULATION COVERED WITHIN EACH TIME INCREMENT (CUMULATIVE COVERAGE)

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT	2000 POPULATION	PERCENT
Less than 2	0.82	19.3%	18.41	30.2%	3,134	20.2%
2 to less than 4	2.26	53.3%	40.06	65.8%	8,794	56.7%
4 to less than 6	3.72	87.7%	53.97	88.7%	13,862	89.3%
6 or more	0.52	12.3%	6.90	11.3%	1,659	10.7%
Total	4.24	100.0%	60.87	100.0%	15,521	100.0%

EXHIBIT 21
TRAVEL TIME WITHIN COHOES FROM THE CENTRAL FIRE STATION
AREA, STREET MILES, AND POPULATION COVERED WITHIN EACH TIME INCREMENT

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT	2000 POPULATION	PERCENT
Less than 2	0.77	18.2%	17.74	29.1%	3,127	20.1%
2 to less than 4	1.87	44.1%	24.21	39.8%	7,152	46.1%
4 to less than 6	1.37	32.3%	16.40	26.9%	4,521	29.1%
6 or more	0.23	5.4%	2.52	4.1%	721	4.6%
Total	4.24	100.0%	60.87	100.0%	38,889	100.0%

AREA, STREET MILES, AND POPULATION COVERED WITHIN EACH TIME INCREMENT (CUMULATIVE COVERAGE)

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT	2000 POPULATION	PERCENT
Less than 2	0.77	18.2%	17.74	29.1%	3,127	20.1%
2 to less than 4	2.64	62.3%	41.95	68.9%	10,279	66.2%
4 to less than 6	4.01	94.6%	58.35	95.9%	14,800	95.4%
6 or more	0.23	5.4%	2.52	4.1%	721	4.1%
Total	4.24	100.0%	60.87	100.0%	15,521	100.0%

EXHIBIT 22**TRAVEL TIME WITHIN COHOES FROM THE COHOES HILL STATION****AREA, STREET MILES, AND POPULATION COVERED WITHIN EACH TIME SEGMENT**

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT	2000 POPULATION	PERCENT
Less than 2	0.59	13.9%	9.80	16.1%	1,842	11.9%
2 to less than 4	1.41	33.3%	22.61	58.4%	5,237	33.7%
4 to less than 6	1.13	26.7%	15.64	78.9%	4,436	28.6%
6 or more	1.11	26.2%	12.82	21.1%	4,006	25.8%
Total	4.24	100.0%	60.87	100.0%	15,521	100.0%

AREA, STREET MILES, AND POPULATION COVERED WITHIN EACH TIME INCREMENT (CUMULATIVE COVERAGE)

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT	2000 POPULATION	PERCENT
Less than 2	0.59	13.9%	9.80	16.1%	1,842	11.9%
2 to less than 4	2.00	47.2%	35.54	58.4%	7,079	45.6%
4 to less than 6	3.13	73.8%	48.05	78.9%	11,515	74.2%
6 or more	1.11	26.2%	12.82	21.1%	4,006	25.8%
Total	4.24	100.0%	60.87	100.0%	15,521	100.0%

EXHIBIT 23**TRAVEL TIME WITHIN WATERVLIET FROM THE HEADQUARTERS STATION****AREA, STREET MILES, AND POPULATION COVERED WITHIN EACH TIME SEGMENT**

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT	2000 POPULATION	PERCENT
Less than 2	0.60	40.3%	15.86	45.1%	4,432	43.3%
2 to less than 4	0.84	56.4%	18.91	53.8%	5,586	54.7%
4 to less than 6	0.03	2.0%	0.16	0.5%	200	2.0%
6 or more	0.02	1.3%	0.21	0.6%	0	0.0%
Total	1.49	100.0%	35.14	100.0%	10,207	100.0%

AREA, STREET MILES, AND POPULATION COVERED WITHIN EACH TIME INCREMENT (CUMULATIVE COVERAGE)

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT	2000 POPULATION	PERCENT
Less than 2	0.60	40.3%	15.86	45.1%	4,432	43.3%
2 to less than 4	1.44	96.6%	34.77	98.8%	10,007	98.0%
4 to less than 6	1.47	98.7%	34.93	99.4%	10,207	100%
6 or more	0.02	1.3%	0.21	0.6%	0	0.0%
Total	1.49	100.0%	35.14	100.0%	10,207	100.0%

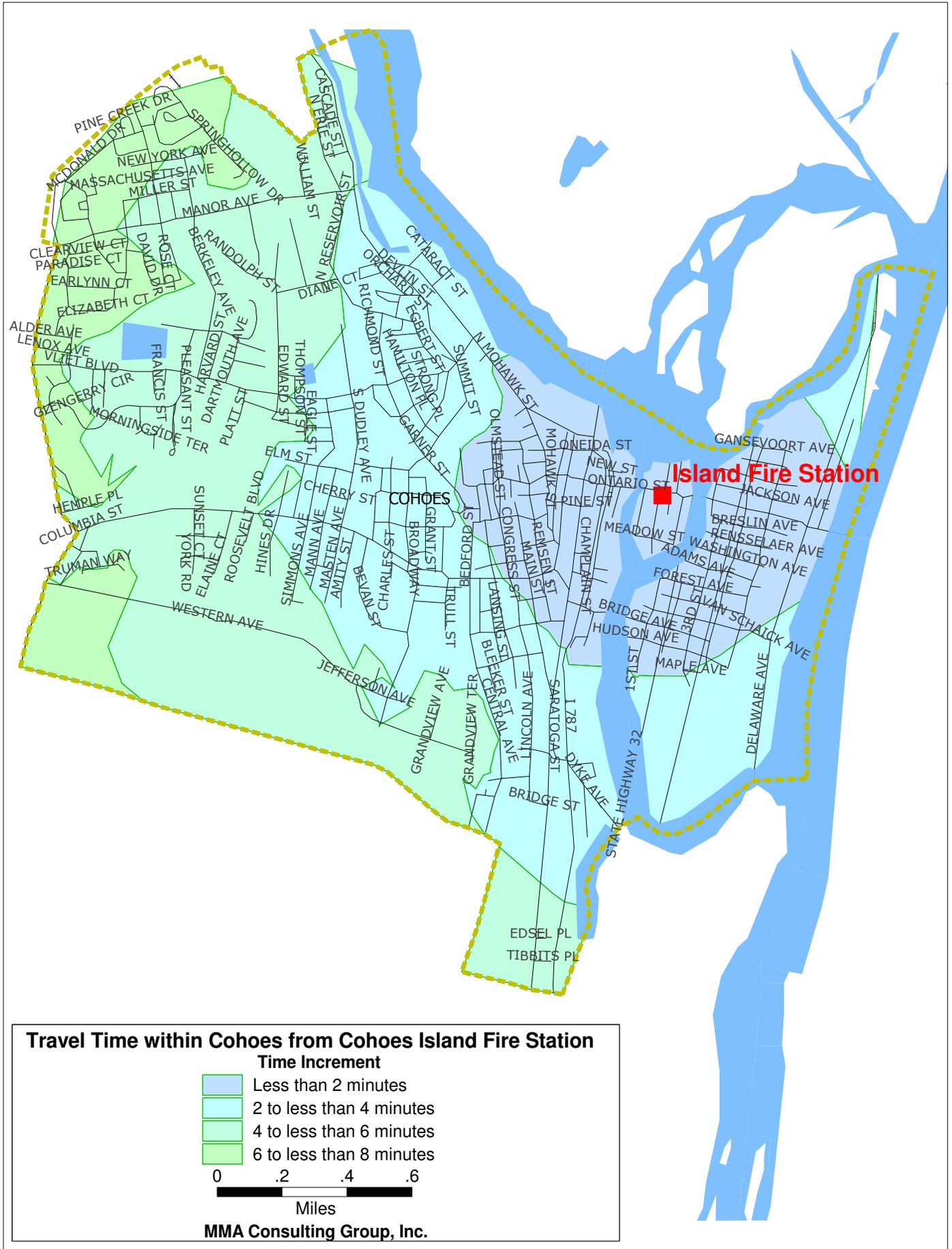
EXHIBIT 24**TRAVEL TIME WITHIN GREEN ISLAND FROM THE GREEN ISLAND FIRE STATION****AREA, STREET MILES, AND POPULATION COVERED WITHIN EACH TIME SEGMENT**

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT	2000 POPULATION	PERCENT
Less than 2	0.51	55.4%	9.21	76.6%	1,282	56.3%
2 to less than 4	.34	37.0%	2.12	17.6%	844	37.1%
4 to less than 6	0.07	7.6%	0.70	5.8%	152	6.7%
Total	.92	100.0%	12.03	100.0%	2,278	100.0%

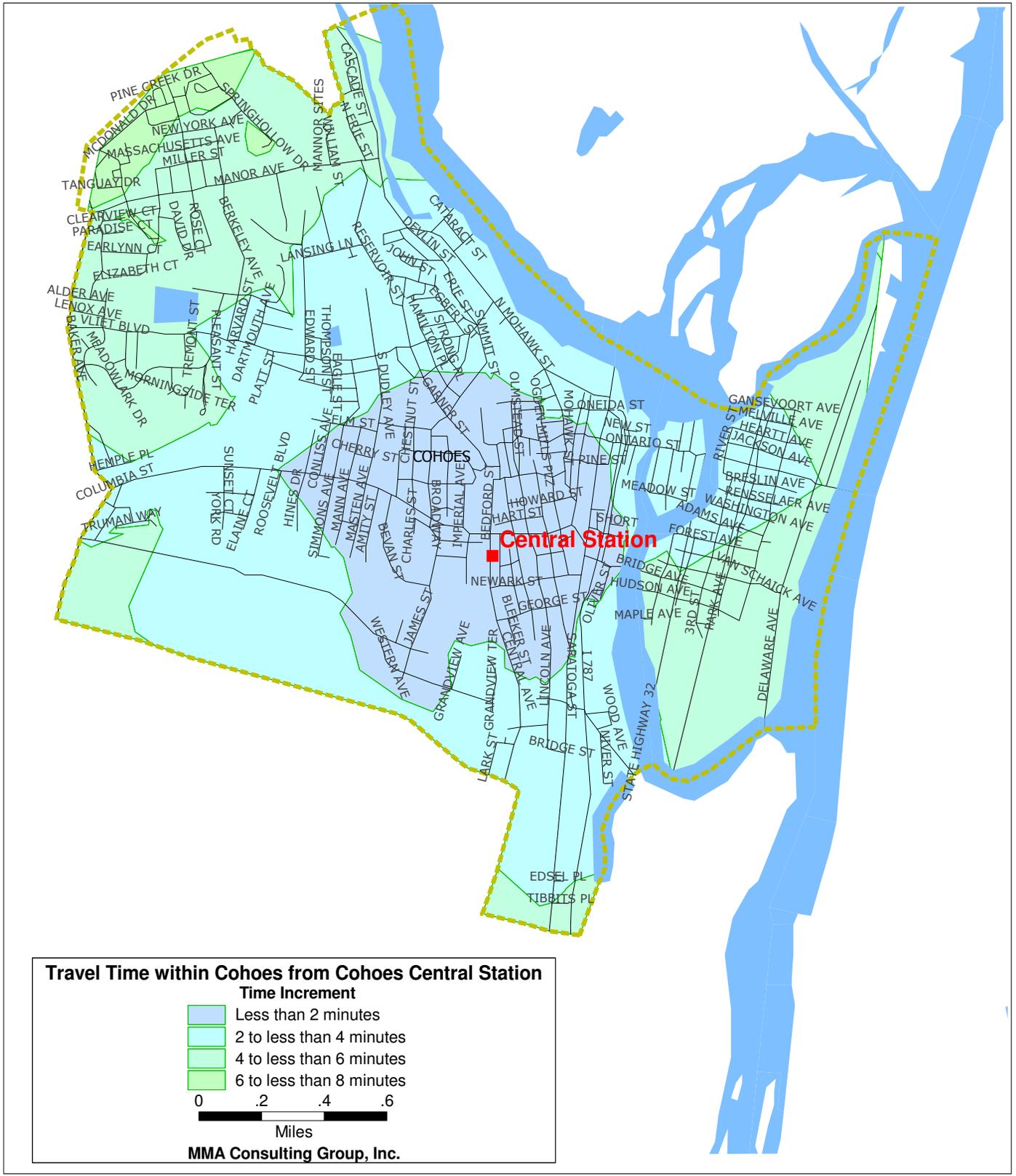
AREA, STREET MILES, AND POPULATION COVERED WITHIN EACH TIME INCREMENT (CUMULATIVE COVERAGE)

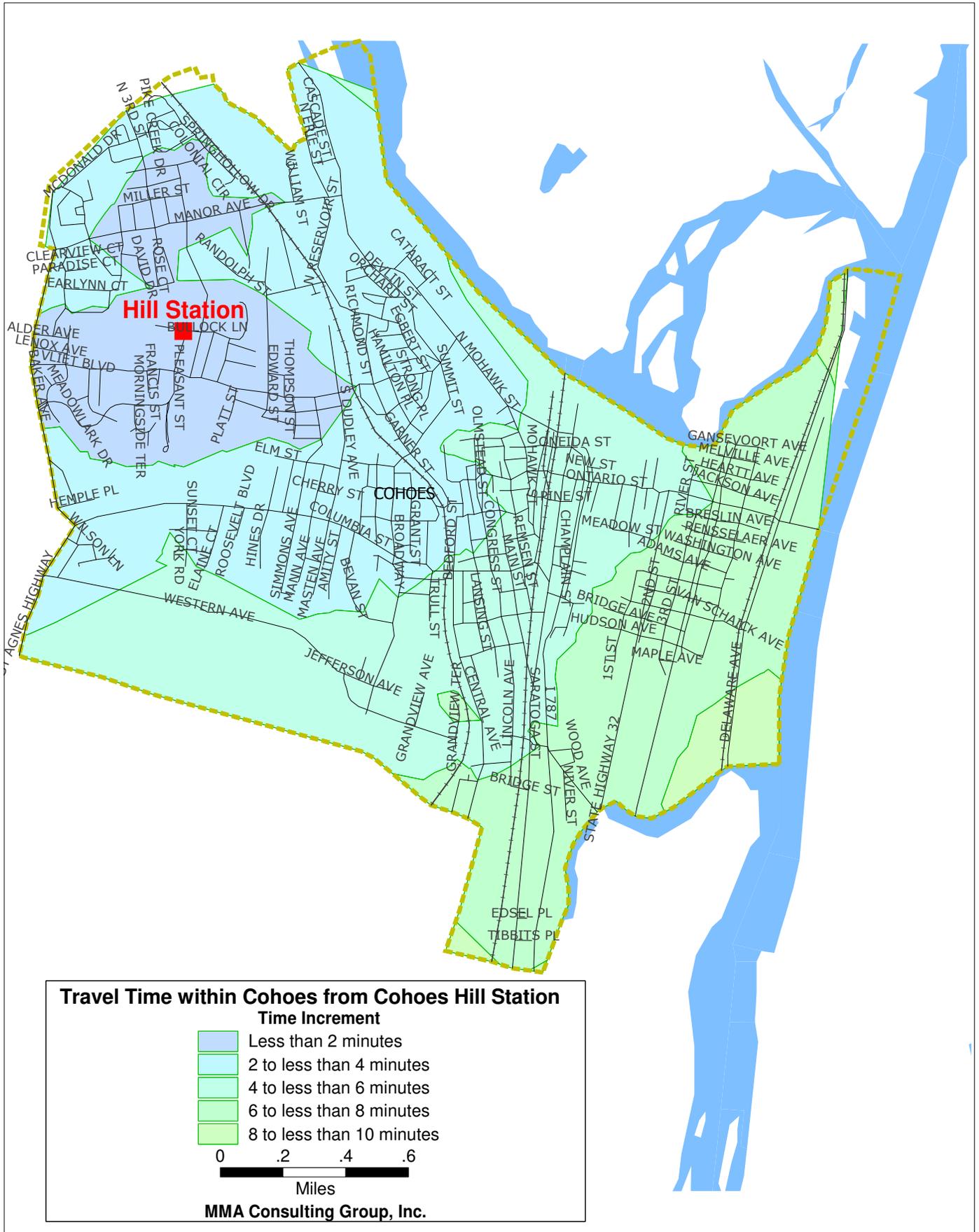
MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT	2000 POPULATION	PERCENT
Less than 2	0.51	55.4%	9.21	76.6%	1,282	56.3%
2 to less than 4	.85	92.4%	11.33	94.2%	2,126	93.3%
4 to less than 6	0.92	100%	12.03	100%	2,278	100%

MAP 1

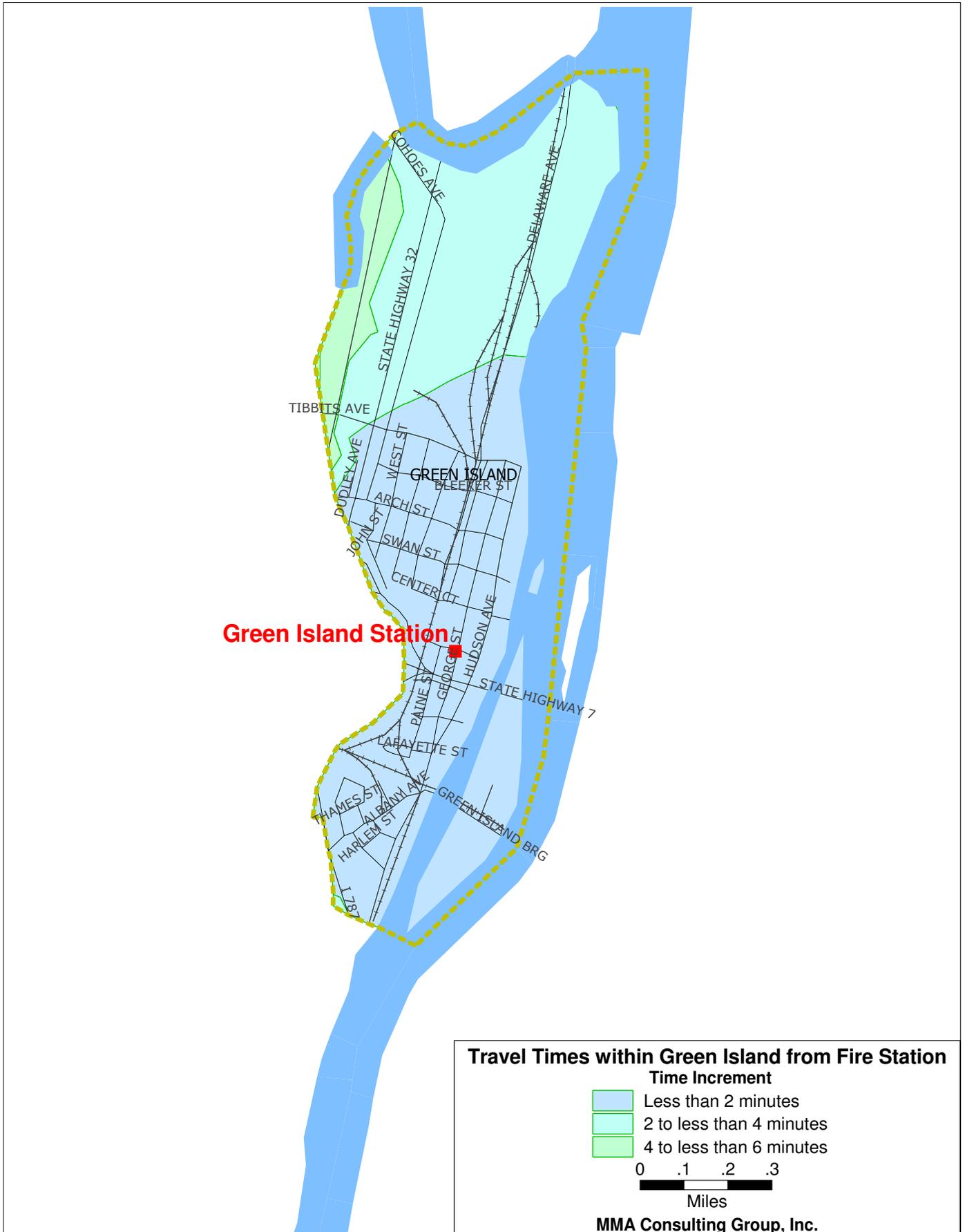


MAP 2

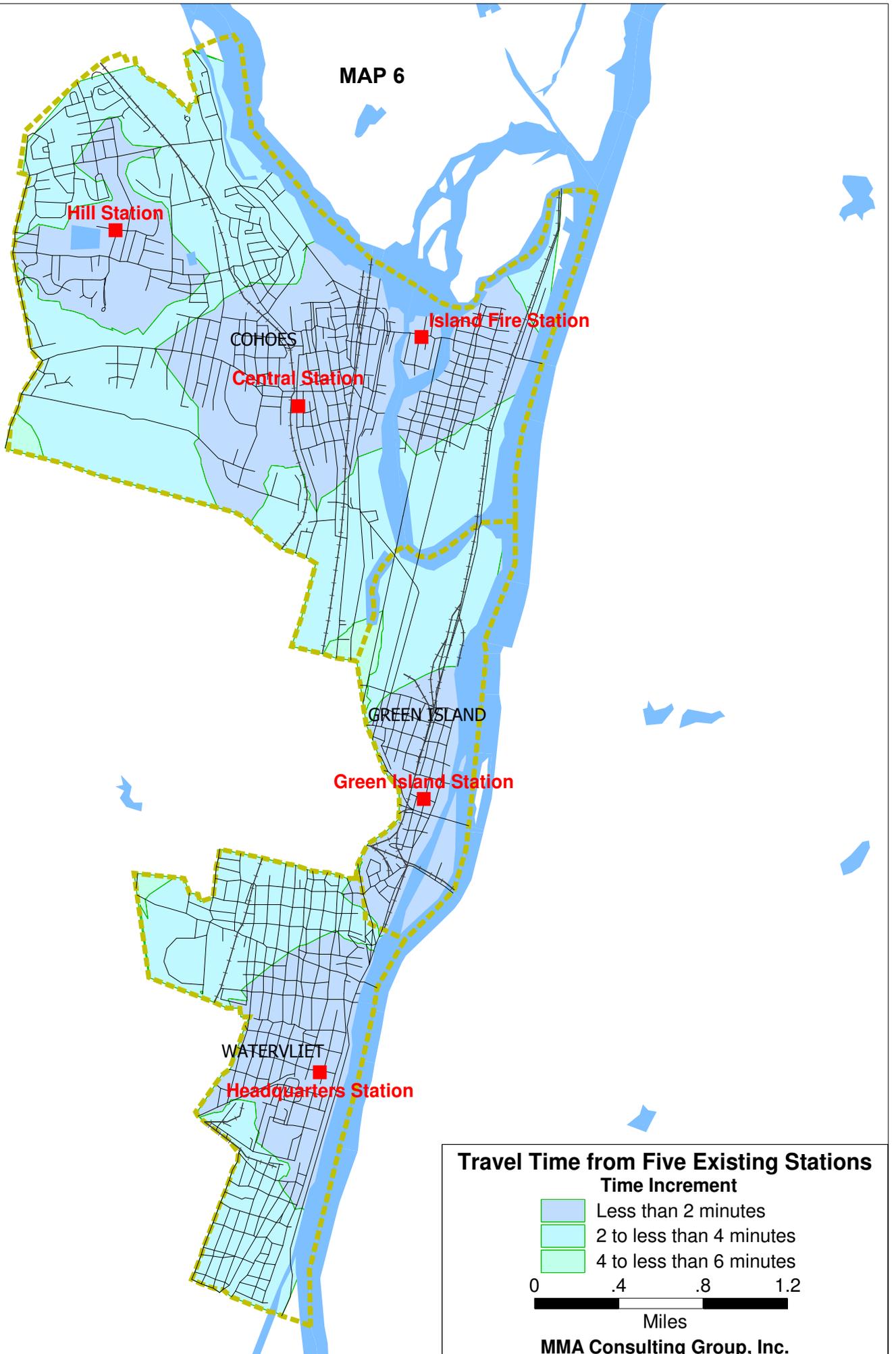




MAP 5



MAP 6



Travel Time from Five Existing Stations
Time Increment

- Less than 2 minutes
- 2 to less than 4 minutes
- 4 to less than 6 minutes

0 .4 .8 1.2



Miles

MMA Consulting Group, Inc.

COOPERATION AND CONSOLIDATION MODELS

Analysis indicates that there are opportunities for the Cohoes and Watervliet Fire Departments to share services. A continuum of service approaches was examined, including maintaining the status quo, operational consolidation, functional consolidation, and full consolidation. There are several underlying principles to consider when determining the feasibility of consolidating fire departments.

- ▶ Safety of firefighters
- ▶ Safety of the public
- ▶ Effectiveness of operations
- ▶ Sensitivity to costs
- ▶ Interdependence of fire and rescue agencies

OPTION 1

Operational consolidation links fire departments so that they operate as one department at the scene of a major incident. The Cohoes and Watervliet Fire Departments have established informal automatic aid agreements and formal mutual aid agreements. These agreements are the initial steps necessary to achieve operational consolidation. However, the current system would be more effective if operational and communication protocols were established in writing. Each City must subscribe to the automatic aid system. The cost of implementing an operational consolidation system is limited.

OPTION 2

Functional consolidation envisions a more integrated emergency response system. Fire departments maintain their identity, but maximize opportunities to cooperate on administrative and operational functions. The primary step in this process is to develop a unified joint communication system. Under this approach, the Cities would share one emergency communication center. The creation of a consolidated emergency communication department may depend on the decision of the Cities to participate in a County-wide emergency communication system. A consolidated communication system requires the adoption of unified policies and procedures, and an integration of emergency response. Functional consolidation results in the development of joint training programs, shared purchasing and

contractual services (e.g., vehicle and apparatus maintenance, pump testing), and collective support and administrative services.

The functional consolidation approach would allow Cohoes to consolidate fire and rescue resources into two fire station. In addition, Cohoes should consider decommissioning its aerial and selling the apparatus. It should also consider entering into an agreement with Green Island and Watervliet to participate in the shared aerial ladder program. Selling the apparatus may allow Cohoes to buy into the shared aerial system. Alternatively, the Cohoes aerial could be used as a reserve apparatus.

Some cost savings can be achieved by functional consolidation, but there will be costs for establishing the communication system. If fewer dispatch personnel are required, some cost savings are possible, depending on technical decisions. If the Cities decide to use emergency medical dispatch (EMD) procedures, there are limited cost savings. Assuming that an existing facility may be used for a communication center, approximately \$100,000 to \$125,000 will be required to organize the system.

OPTION 3

Full consolidation of the Cohoes and Watervliet Fire Departments would result in the full integration of services and personnel. The Cohoes and Watervliet Fire Departments provide similar fire and emergency response services. The primary service delivery difference between the departments is the level of emergency medical services provided. The Watervliet Fire Department provides ambulance transport services at the ALS level. The Cohoes Fire Department provides non-transport BLS services. The Watervliet Fire Department employs 14 EMT-Ps (paramedics). The Cohoes Fire Department requires all personnel to be EMTs. There are three Cohoes firefighters who are EMT-Ps.

COST REDUCTION AND INCREASED REVENUE

The full consolidation option offers the greatest opportunity for cost containment. In addition to financial benefits, there are management and operational benefits to full consolidation. For purposes of this analysis, we have assumed that the total number of fire and rescue personnel would not change. Exhibit 25 identifies cost savings and benefits of consolidation.

EXHIBIT 25

BENEFITS OF CONSOLIDATION OF THE COHOES AND WATERVLIET FIRE DEPARTMENTS

ITEM	COMMENT	BENEFIT
Eliminate one Fire Chief position	Only one fire chief is required under consolidation. Assume a reduction in a salary of \$85,000 to \$90,000, plus benefits equal to 40 percent of base salary.	-\$119,000 to -\$126,000
Reorganize rank structure	There are currently 12 officers, not including the fire chiefs. Currently, there are one battalion chief, nine captains, and six lieutenants (16 officers). The consolidation will require an altered rank structure. There will be three or four captains; the remaining fire officers will be lieutenants. This results in five fewer captains. Assuming that the total number of officers does not change, we can assume savings of \$3,000 per position (minus one battalion chief, minus five captains; $\$3,000 \times 6 = \$18,000$).	-\$18,000 to -\$20,000
Change Captain role	The supervisory role of captains should be changed. Personnel should be removed from the union or become a separate collective bargaining unit.	A shift supervisor would be available at all times.
Close one fire station	One fire station should be closed. Costs savings are limited.	-\$20,000
Reduce apparatus	One apparatus should be decommissioned. A possible approach would be for Cohoes to sell its aerial apparatus and use monies to buy into the shared aerial ladder program of Watervliet and Green Island. Alternatively, the aerial could be assigned as a reserve unit.	No direct cost savings. Long-term savings are achieved when fewer apparatus are replaced. Assuming a ladder is not replaced, the departments avoid substantial costs.
Redeploy personnel and manage overtime	A redeployment plan will reallocate personnel among stations and allow for the management of overtime.	-\$100,000 to -\$125,000
Reduce administrative costs	Initial administrative costs savings are relatively small.	-\$5,000 to -\$20,000
Reduce vehicle fleet	It will be possible to eliminate several support and command vehicles.	Long-term savings occur, since some vehicles are not replaced.

The Cities should consolidate emergency communications (or participate in a County-wide system). Consolidating emergency communications may result in some cost savings, depending on the staffing requirements of a consolidated dispatch center. Improvements in emergency communications are essential. The provision of emergency medical transport services by Watervliet, and the possible expansion of emergency medical services by Cohoes, require the Departments to

implement an EMD system. An EMD system would be more cost effective if implemented on a County-wide basis.

Exhibit 26 summarizes cost savings in today's dollars. The exhibit shows the range of potential savings. In addition, the exhibit assigns a level of difficulty to achieving cost savings. A low level of difficulty suggests that implementation of the change is relatively easy; a medium level of difficulty means that change may be somewhat difficult to implement; a high level of difficulty means that implementation will be very difficult.

EXHIBIT 26
ESTIMATED COST SAVINGS RESULTING FROM FULL CONSOLIDATION

ITEM	RANGE OF COST SAVINGS		LEVEL OF DIFFICULTY
	LOW	HIGH	
Eliminate one Fire Chief position	\$100,000	\$120,000	Low
Reorganize rank structure	\$18,000	\$20,000	Medium
Close one fire station	\$20,000	\$20,000	Medium/High
Redeploy personnel and manage overtime	\$100,000	\$125,000	High
Reduce administrative costs	\$15,000	\$20,000	Low
Total estimated cost reductions	\$253,000	\$305,000	

Exhibit 26 does not fully identify cost avoidance opportunities. Cost avoidance occurs when certain expenditures are no longer required. For example, if the apparatus and vehicle fleet is reduced, and replacement of equipment is not required, cost savings occur in the future. In addition, there are opportunities for revenue increases, especially if Cohoes develops a system to provide ambulance transport services. The revenue generated will depend on the nature of services and the number of ambulance transports. If we assume that the type of services provided is similar to Watervliet, it is possible to estimate revenue potential. Watervliet collected \$304,000 in EMS revenue in 2009. The Watervliet Fire Department responded to 1,122 EMS incidents and transported a patient in slightly more than 80 percent of incidents. Assuming that the Cohoes Fire Department provides ambulance transport services, and the Department transports a patient in 70 percent of responses, the Cohoes Fire Department would have provided

ambulance transport services in approximately 1,527 responses in 2009 (i.e., 70 percent of the 2,182 EMS responses made by the Cohoes Fire Department). If collection levels for Cohoes are similar to Watervliet's, the expansion of EMS transport services would generate approximately \$458,000 in revenue. If the transport rate was somewhat higher, the revenue would increase; for example, an 80 percent transport rate would generate approximately \$523,500.

There would be one-time costs associated with developing an EMS system of approximately \$90,000. Operating costs would also increase by \$90,000 annually. The annual cost increase includes any stipends for paramedics, the cost of supplies, amortization of an ambulance, and training costs. This also assumes that existing personnel operate the ambulance. It should be noted that Cohoes and Watervliet could operate an ambulance transport system with three ambulances.

The estimate of cost savings would be \$253,000 to \$305,000 annually. Net revenue of approximately \$380,000 to \$410,000 would be expected. Exhibit 27 displays costs savings and potential revenue.

EXHIBIT 27
ESTIMATED COST SAVINGS AND NET REVENUE

ITEM	COST SAVINGS/NET REVENUE	
	LOW	HIGH
Cost Reduction	\$253,000	\$305,000
Net Revenue	\$380,000	\$410,000
Total	\$633,000	\$715,000

ALLOCATION OF COSTS

The development of a consolidated fire department requires the allocation of costs. There are a number of cost allocation models to consider. For illustration purposes, we have allocated the cost of a consolidated fire department's operations based on the population of each City and the annual number of calls for service. Exhibits 28 and 29 show the allocation costs for operating the Cohoes and Watervliet Consolidated Fire Department.

Exhibit 28 shows the fire department budget for each City, the 2000 population, and the average number of calls for service over a four-year period. The cost allocation model assumes that 50 percent of costs are based on population and 50 percent of costs are based on calls for service. The total of the fire department budgets is allocated equally; \$2,386,237 is allocated based on population, and \$2,286,237 is allocated based on calls for service. Cost reductions and revenue increases are not included in this example.

EXHIBIT 28
COST ALLOCATION ASSUMPTIONS

	2000 POPULATION	% OF TOTAL POPULATION	2010 BUDGET	CALLS FOR SERVICE FOUR-YEAR AVERAGE	% OF TOTAL CALLS FOR SERVICE
Cohoes	15,421	60%	\$2,919,724	3,026	63%
Watervliet	10,257	40%	\$1,816,750	1,791	37%
Total	25,678	100%	\$4,736,474	4,807	100%

Allocation of costs based on the 2010 budget of the Cohoes and Watervliet Fire Departments indicates that the cost for each City would not be altered significantly. Cohoes would pay \$6,792 less and Watervliet would pay \$6,792 more. This cost model assumes no reduction in costs or increase in revenue.

EXHIBIT 29
COST ALLOCATION BASED ON 2010 BUDGET

	PERCENT OF POPULATION	COST ALLOCATED BY POPULATION	PERCENT OF CALLS	COST ALLOCATED BY NUMBER OF CALLS	COST FOR EACH CITY	INCREASE/DECREASE
Cohoes	60.0%	\$1,420,942	63.0%	\$1,491,989	\$2,912,932	(\$6,792)
Watervliet	40.0%	\$947,294	37.0%	\$876,248	\$1,823,542	\$6,792
	100.0%		100.00%			

The allocation of costs is significantly altered when we assume an increase in revenue of \$380,000 and a decrease in costs of \$253,000. Exhibit 30 shows the allocation of costs in the same manner as Exhibit 29, but assumes cost reductions and revenue increases. The revenue increases and cost reductions require the allocation of \$4,103,474 (\$4,736,474 minus \$633,000). Under this allocation model,

Cohoes would realize a reduction in costs of \$396,000 and Watervliet would realize a reduction in costs of \$237,000.

EXHIBIT 30
COST REALLOCATION BASED ON COST REDUCTION AND REVENUE INCREASE

	PERCENT OF POPULATION	COST ALLOCATED BY POPULATION	PERCENT OF CALLS	COST ALLOCATED BY CALLS	COST FOR EACH CITY	INCREASE/ DECREASE
Cohoes	60.0%	\$1,231,042	63.0%	\$1,292,594	\$2,523,637	(\$396,087)
Watervliet	40.0%	\$820,695	37.0%	\$759,143	\$1,579,837	(\$236,913)
	100.0%	\$2,051,737	100.00%	\$2,051,737	\$4,103,474	(\$633,000)

PUBLIC COMMENT

This document has been prepared for circulation to enable public comment and stakeholder committee review. Comments are welcome and will be reviewed by the consulting team.