

JEFFERSON COUNTY EMERGENCY SERVICES AGENCY



2024 Ambulance Response Area Report

It's About Saving Lives

*JCESA is an equal opportunity emergency service provider,
Employer, and community partner of Jefferson County, WV.*

In February 2022 the Jefferson County Commission was presented with a comprehensive EMS Study performed by FITCH & Associates. This report evaluated many factors of the current Ems system including but not limited to: Call Volume, Response Time, Time of Day for Calls, EMS Station Locations, County Population and Density, Staffing Model, etc. This report provided a summary of current services as well as new models that were based on call response times targeted to the 90th percentile of coverage. There were (1) 10 minute and (2) 15 minutes models with varied staffing levels and locations.

During 2022 the Commission and County Administrator began discussion of acquiring VFD owned ambulances and having the county provide the 911 ambulance services. Thus began the EMS Transition. 9 active units and 1 under contract to be built unit, all EMS supplies, and EMS equipment were purchased from most of the VFD's. It was further decided that the Agency as a Board (component agency) would be dissolved and converted into a regular Commission Department.

Based on funding, staffing levels, available station locations, response times, and call volume and density a modified 6 unit / 4 geographic location model was adopted. The CFAI Accreditation Benchmarking from the Fitch Study and maps showing call density and response time coverage from available locations were referenced to create this modified model. This model placed emphasis on providing the most efficient utilization and distribution of resources while operating within the available funding sources.

The Agency is also dedicated to the ever-expanding role as firefighters and rescue personnel to assist or perform in the absence of the VFD personnel. This responsibility further complicates the staffing plans to ensure that, due to limited personnel, Agency employees are not placed into situations that would hamper their ability to perform without taking undue risks to themselves or others.

The Jefferson County staffing model placed into effect on March 1, 2023, is as follows:

- 1 - 24hr ALS staffed unit at Friendship Fire Company, Harpers Ferry/Bolivar.
- 2 - 24hr ALS staffed units at Citizens Fire Company, Charles Town.
- 1 - 24hr ALS unit and 1 - 12hr (6a-6p) BLS unit at Independent Fire Company, Charles Town.
- 1 - 24hr ALS unit at Shepherdstown Fire Department, Shepherdstown.
- 4 - ALS equipped Reserve ambulance placed in various VFD's (includes 1 new unit received 8/2023)
- To support the new response matrix a plan to move the shift Lieutenant off the ambulance and into a Paramedic Supervisor chase car was created. The anticipated completion date would be no later than 7/1/2024.

Several VFD's converted their WVOEMS Ambulance Transport License to a Rapid Response License and continue to assist with EMS responses within the county. This is particularly evident in the Middleway area due to its ambulance response time and Shepherdstown as it is a significant distance from the next County unit. This is mainly relevant when the primary unit is already committed to a call, and they rely on the next closest unit.

Several community workshops were held to discuss the placement of units ensuring that even though placement and response areas have changed all citizens were going to receive timely service. There is constant oversight and review of 911 responses to ensure units are responding in a timely manner, making the best response decisions, and the county is receiving the most effective service possible within available resources. This implementation did not preclude any future changes or additions to the service model. Included in this report are numerous 10-minute response maps. This document will serve as an identification of current and future needs.

CFAI Accreditation Benchmarking

Creating Community Baselines

For the purposes of definition and the need to establish a common benchmark for purposes of evaluating response time accreditation criteria, the following times should be made available and used in defining base line norms for a candidate agency:

Aggregate (Total) Response time -

- A. Alarm handling: 60-second/90% benchmark
90-second/90% baseline
- B. Turnout time: 80-second/90% benchmark (Fire & Special Operations response)
60 Seconds/90% benchmark (EMS response)
90-second/90% baseline
- C. Travel time: Based on criteria for the different risk categories and within guidelines provided for service area and/or population density. See chart to follow.
- Total response time: A+B+C

- ❖ Population: 57,146 (2019)
- ❖ Square mileage: 212
- ❖ Population per square mile: 269.6
- ❖ *Rural – an incorporated or unincorporated area with a population of over 10,000 people or with a population density less than 1,000 people per square mile.*
- ❖ *Response Times: **Benchmark:** 14Min + 60 seconds = 15:00 minutes, **Baseline:** 18:12Min + 90 seconds = 19:42 minutes*

Metropolitan – an incorporated or unincorporated area with a population of over 200,000 people and/or a population density over 3,000 people per square mile.

Metropolitan	1st Unit	2nd Unit	Effective Response Force
Benchmark	4 minutes	8 minutes	8 minutes
Baseline	5:12 minutes	10:24 minutes	10:24 minutes

Urban – an incorporated or unincorporated area with a population of over 30,000 people and/or a population density over 2,000 people per square mile.

Urban	1st Unit	2nd Unit	Effective Response Force
Benchmark	4 minutes	8 minutes	8 minutes
Baseline	5:12 minutes	10:24 minutes	10:24 minutes

Suburban – an incorporated or unincorporated area with a population of 10,000 to 29,999 and/or any area with a population density of 1,000 to 2,000 people per square mile.

Suburban	1st Unit	2nd Unit	Effective Response Force
Benchmark	4 minutes	8 minutes	10 minutes
Baseline	5:12 minutes	10:24 minutes	13 minutes

Rural – an incorporated or unincorporated area with total population less than 10,000 people, or with a population density of less than 1,000 people per square mile.

Rural	1st Unit	2nd Unit	Effective Response Force
Benchmark	10 minutes	14 minutes	14 minutes
Baseline	13 minutes	18:12 minutes	18:12 minutes

Wilderness – any rural area not readily accessible by public or private maintained road. Due to the large disparity between communities that protect wilderness areas, recommended travel times are not provided for this level of service.

Reference Map Pages:

EMS Zones: This map depicts the actual response area of each of the 4 EMS stations as determined by the CAD system's quickest route.

2023 EMS and Fire Territories: This map depicts the fire department response areas as agreed upon by the 7 VFD's.

2023 Call Volume Spreadsheet: Accumulated responses post transition references by new EMS zones and fire box areas.

Density of EMS Calls in 2023: Actual call data from 2023 was used to create this "heatmap". As we can see there are numerous pockets of concentrated high frequency call areas around the map. The hottest areas are in Shepherdstown and Charles Town/Ranson and we should expect to see those areas continue to expand. This is a large determinant for the placement of several units in that area. We do have a weakness in the Shepherdstown District as there is only 1 unit in that station. When the primary unit is on a call we will, when available, move a unit from Citizens to Kearneysville to standby in the event of a 2nd due call in the Shepherdstown area. Sharpsburg EMS is the closest next due company, but we strive to not overutilize that mutual-aid resource.

Future Land Use Guide Jefferson County, WV: This is the County's *Envision Jefferson 2035 Comprehensive Plan*. All the white areas are within municipal boundaries, and we should expect to see significant growth in all areas apart from Harpers Ferry/Bolivar. Yellow and orange are of significance for growth. A greater percentage of those areas on the Blue Ridge Mountain are already built out.

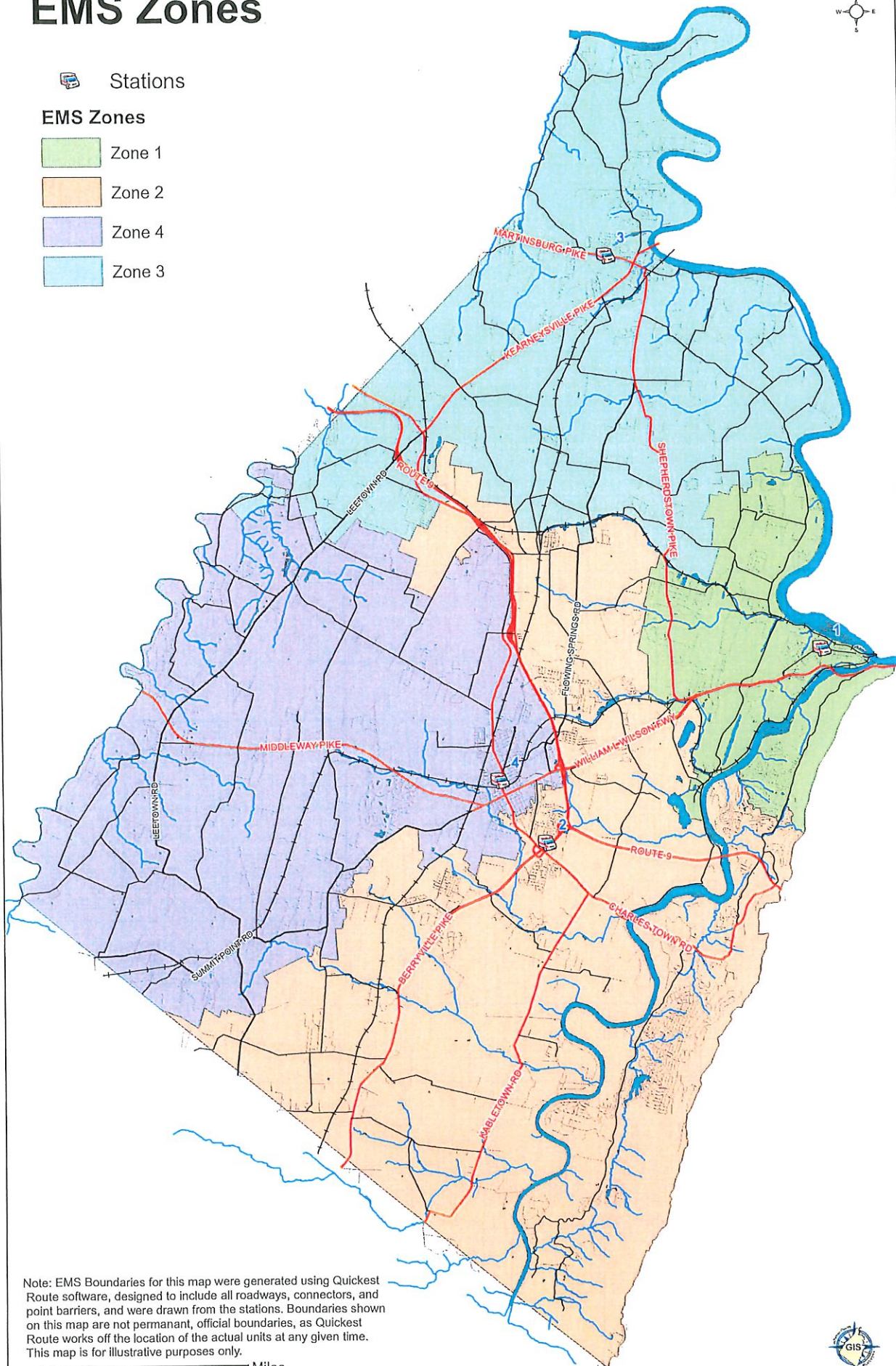
EMS Zones



Stations

EMS Zones

- Zone 1
- Zone 2
- Zone 4
- Zone 3



Note: EMS Boundaries for this map were generated using Quickest Route software, designed to include all roadways, connectors, and point barriers, and were drawn from the stations. Boundaries shown on this map are not permanent, official boundaries, as Quickest Route works off the location of the actual units at any given time. This map is for illustrative purposes only.

0 0.5 1 2 3 4 Miles



Map Created: 3/16/2023

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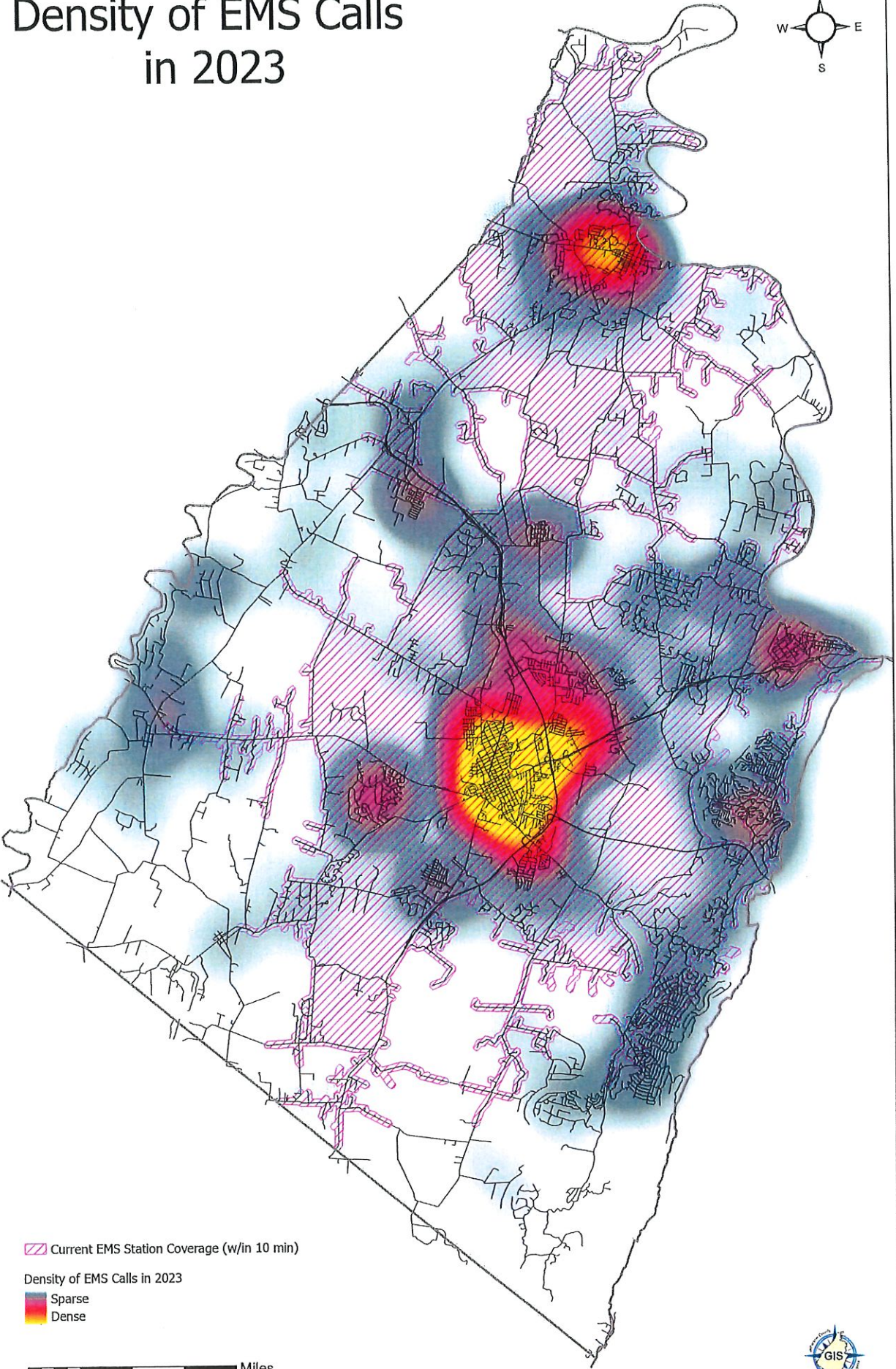
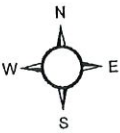
2023

Call Volume per Week by Box & Zone

Week	VFD Fire Boxes									ESA EMS Zones			
	100	200	300	400	500	600	700	OOC	Total	1	2	3	4
3-02-23 to 3-04-23	2	9	14	23	1	6	2	0	57	4	19	11	23
3-05-23 to 3-11-23	5	16	15	32	11	7	4	0	90	11	40	14	25
3-12-23 to 3-18-23	4	19	19	71	16	7	5	2	146	10	61	17	55
3-19-23 to 3-25-23	3	17	16	57	8	6	1	2	112	7	45	18	40
3-26-23 to 4-01-23	3	12	9	43	13	8	6	0	94	10	35	13	35
4-02-23 to 4-08-23	10	21	21	57	11	10	2	1	143	14	45	21	49
4-09-23 to 4-15-23	8	21	18	47	11	8	2	1	116	13	44	20	39
4-16-23 to 4-22-23	9	15	18	49	19	12	3	0	115	13	54	17	46
4-23-23 to 4-29-23	6	17	16	27	4	6	4	0	80	11	30	14	26
4-30-23 to 5-06-23	1	17	12	44	8	11	3	1	97	8	42	12	35
5-07-23 to 5-13-23	8	17	23	40	11	8	4	1	113	13	45	22	33
5-14-23 to 5-20-23	7	21	26	47	11	7	9	1	129	14	49	22	41
5-21-23 to 5-27-23	5	30	19	49	7	9	2	1	122	10	55	16	39
5-28-23 to 6-03-23	11	26	11	44	14	5	3	2	116	16	55	10	35
6-04-23 to 6-10-23	6	19	16	51	8	10	7	0	117	14	44	12	47
6-11-23 to 6-17-23	7	11	23	55	6	7	9	0	118	15	56	21	45
6-18-23 to 6-24-23	9	19	24	44	12	4	9	3	124	35*	39	11	30
6-25-23 to 7-01-23	4	29	11	65	10	7	7	4	137	26	56	12	55
7-02-23 to 7-08-23	9	26	14	58	9	5	8	1	130	14	68	19	53
7-09-23 to 7-15-23	15	25	24	57	11	15	11	1	159	25	81	11	49
7-16-23 to 7-22-23	6	25	18	55	10	17	1	0	132	8	51	20	54
7-23-23 to 7-29-23	6	29	24	54	12	5	1	0	131	10	67	25	47
7-30-23 to 8-05-23	9	20	16	51	7	7	4	0	114	13	53	4	48
8-06-23 to 8-12-23	10	14	19	52	17	13	3	2	130	8	28	18	52
8-13-23 to 8-19-23	8	20	18	45	10	14	7	1	123	19	62	18	41
8-20-23 to 8-26-23	3	19	19	50	8	8	4	1	112	12	49	21	47
8-27-23 to 9-02-23	6	23	15	56	13	9	7	1	130	15	51	16	58
9-03-23 to 9-09-23	8	26	21	45	7	8	9	1	125	17	63	22	39
9-10-23 to 9-16-23	7	17	14	43	6	10	2	0	99	11	44	14	42
9-17-23 to 9-23-23	7	26	14	59	8	6	4	4	129	9	1	10	51
9-24-23 to 9-30-23	10	20	23	50	5	14	8	2	129	19	46	26	51
10-01-23 to 10-07-23	6	19	26	54	3	10	5	0	123	14	41	24	64
10-08-23 to 10-14-23	3	22	24	54	12	9	6	0	130	7	58	26	45
10-15-23 to 10-21-23	6	18	22	50	7	9	3	0	115	10	45	19	45
10-22-23 to 10-28-23	7	21	25	61	9	10	7	3	143	7	66	26	46
10-29-23 to 11-04-23	6	25	24	51	0	8	5	0	119	10	66	21	37
11-05-23 to 11-11-23	6	10	14	48	11	4	2	2	97	8	30	25	39
11-12-23 to 11-18-23	8	27	20	61	5	15	12	4	152	18	66	26	57
11-19-23 to 11-25-23	3	15	17	41	11	7	5	0	99	9	43	18	38
11-26-23 to 12-02-23	7	16	17	45	12	9	7	0	113	12	62	21	39
12-03-23 to 12-09-23	5	31	15	38	11	12	5	0	117	14	50	9	56
12-10-23 to 12-16-23	8	22	22	63	16	7	1	0	139	16	61	20	54
12-17-23 to 12-23-23	8	28	21	44	11	9	5	1	127	16	54	36	42
12-24-23 to 12-30-23	6	19	16	64	19	11	13	1	149	23	67	21	53
TOTALS	291	899	813	2194	431	389	227	44	5292	553	2187	799	1945
AVG / WEEK YTD	6.61	20.43	18.48	49.86	9.80	8.84	5.16	1.00	120.27	12.57	49.70	18.16	44.20

* Inaccurate - Suspected due to unit being mis-zoned

Density of EMS Calls in 2023



Current EMS Station Coverage (w/in 10 min)

Density of EMS Calls in 2023

Sparse
Dense

0 0.5 1 2 3 4 Miles



Map Created: Feb 28, 2024

4

 Special Design Area
 Preferred Growth Area
 Quarry Redevelopment Area
 Growth Management Boundary
 Urban Growth Boundary
 Urban Growth Boundary Expansion
 Village
 Village Expansion
 2004 Growth Area

Alternative 4
Alternative 4
Alternative 4

- Rural/Agriculture
- Rural/Agriculture For Possible Urban Development
- Agricultural Economic Empowerment Area
- Large Lot Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- General Commercial
- Neighborhood Commercial
- Regional Commercial
- Industrial
- Office
- Mixed Use Residential/Commercial
- Mixed Use Office/Commercial
- Residential or Commercial
- Office or Commercial
- Industrial or Commercial
- Public/Quasi Public Land
- Golf Course



Map Created: February 3, 2018

Signature Mike M. Webb
Certified by County Commission President
Jefferson County, WV

[illegible]

EMS Stations Quickest Route Response Time Maps :

Note: These are travel time only maps. True response time includes call received/dispatched time, (+) roll-out (crew mobilization) time, (+) travel time.

Current EMS Stations: This map represents the 10-minute QR (quickest route) for current deployments.

Here are clearly some areas that could use improvement.

1 – Middleway, Summit Point, Leetown: These areas were previously served by Middleway Fire Company (Co6) ambulances and continue to be served by Co6 Rapid Response Vehicles and the Independent (Co4) Station ambulances.

2 – Kearneysville, Bardane, Shenandoah Junction: This area is served by Shepherdstown (Co3) and Citizens (Co2) Stations ambulances. It has been an area of possible expansion by Co3 for many years.

3 – Blue Ridge Mountain: This was served by the Blue Ridge Mtn VFC (Co5) and is currently covered by the Co2 and Friendship (Co1) Station ambulances.

4 – Bakerton, Uvilla, Molers Crossroads: This area was served by the Bakerton FD (Co7) and is currently served by the Co3 and Co1 ambulances.

5 – Kabletown, Meyerstown: This area is served by Co2 ambulances.

Middleway Expansion Map: *Highest Priority* This defines the improved area if an ambulance was placed back in Co6. There are extended response times well beyond the 10min QR and an average of 8-10 EMS calls per week in that area as shown in the *Density of EMS Calls Map*. The response from Co4 can easily be cut off by a train obstruction on the Middleway Pike and Summit Point Rd crossings. This would easily add 10 minutes or more to an already extended response. This area is Zoned Rural/Agriculture and Large Lot Residential, but it is prime for future growth. Having previously housed a unit at Co6 it would be an easy addition to the staffed stations.

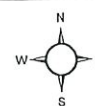
Kearneysville Expansion Map: *High/Moderate Priority* This defines the improved area if a new station was constructed and staffed in this area. This area is already at the tip of the 10 QR and has significant call volume. There are several large, planned subdivisions within the Kearneysville, Bardane, and Shenandoah Junction Area and it will soon see explosive growth. The addition of a station here would support the Shepherdstown area and eliminate the need to send Co2 to standby in the area. There are a few potential existing buildings available and ample locations for the acquisition of property.

Blue Ridge Mountain Expansion Map: *Moderate Priority* This defines the improvements to the entire Mountain area. To properly serve both the Northern and Southern regions it would require the acquisition of property and construction of a new building at the top of the mountain, near the intersection of Rt 9 and Charles Town Rd. This area is the best location as a unit can go North on Chestnut Hill Rd, South on Charles Town Rd to Mission Rd areas, or directly down Rt 9 to Charles Town. These are primary routes of travel and are the first areas on the mountain to be serviced by the DOH in bad weather. The existing stations of Co5 are either too far away from the other regions or unable to house staffing. The mountain area has a call volume equal to Co6 but sees equal or faster responses over other unincorporated/unstaffed areas.

Bakerton Relocation 1 & 2: *Moderate/Low priority* This area defines the improvements to the entire Northeast area of the county if the Bakerton station was relocated to either proposed location. There is low call volume to this area but it has extended response times. The relocation would support the Shepherdstown area as well as the proposed school complex at Gardner Ln & Shepherdstown Pike. There is also potential for significant residential development in that area.

Kabletown, Meyerstown: *Low Priority* This area has longer response times but has low call volume. Most of the area is large acreage farmland. A significant portion is in planning stages for solar farm construction. Lowest priority unless significant unplanned residential growth occurs.

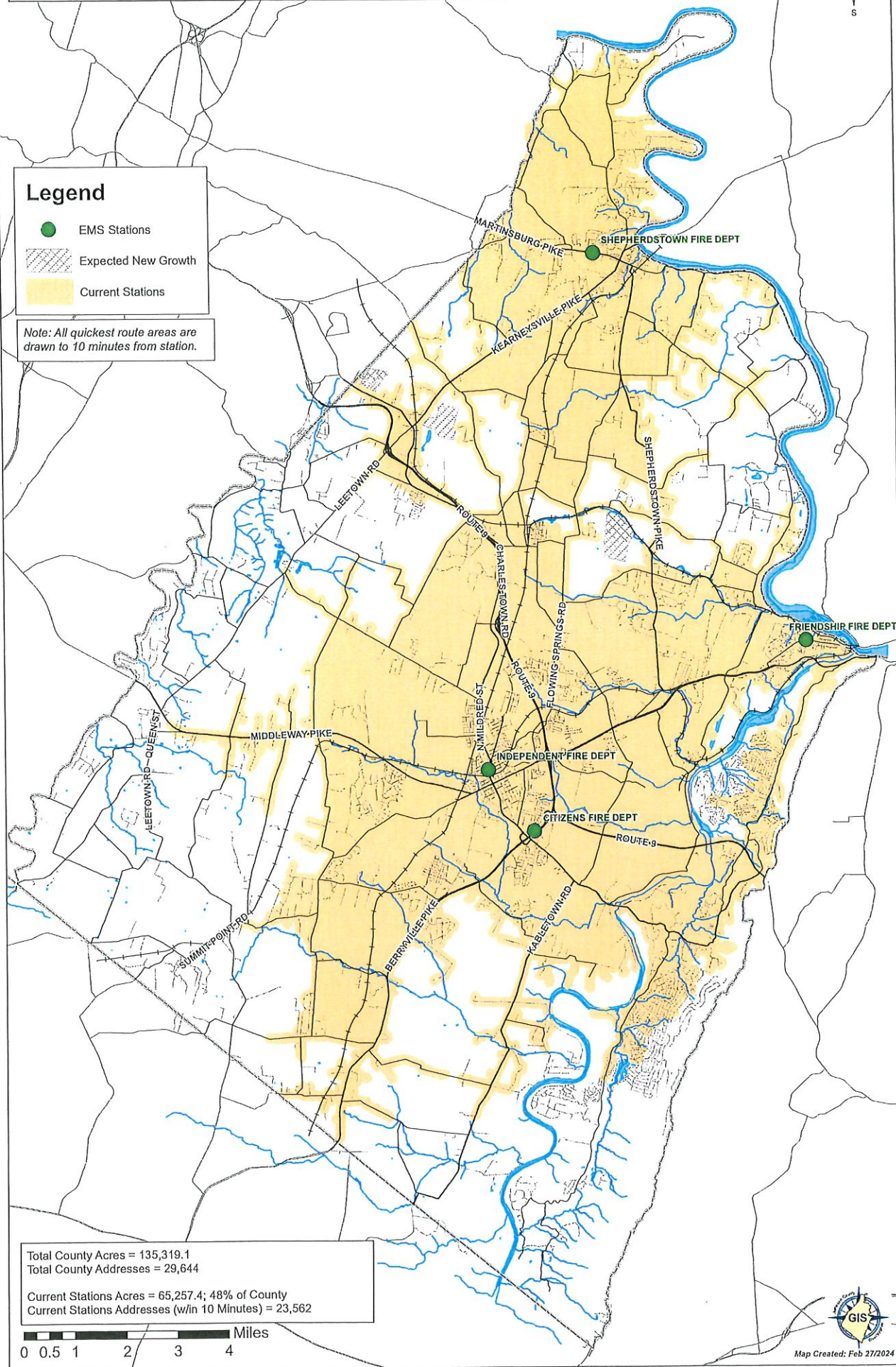
Current EMS Stations Quickest Route Response Times



Legend

- EMS Stations
- Expected New Growth
- Current Stations

Note: All quickest route areas are drawn to 10 minutes from station.



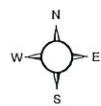
Total County Acres = 135,319.1
 Total County Addresses = 29,644
 Current Stations Acres = 65,257.4; 48% of County
 Current Stations Addresses (w/in 10 Minutes) = 23,562

0 0.5 1 2 3 4 Miles



Map Created: Feb 27/2024

Current EMS Stations Quickest Route Response Times and Proposed New Station Expansion

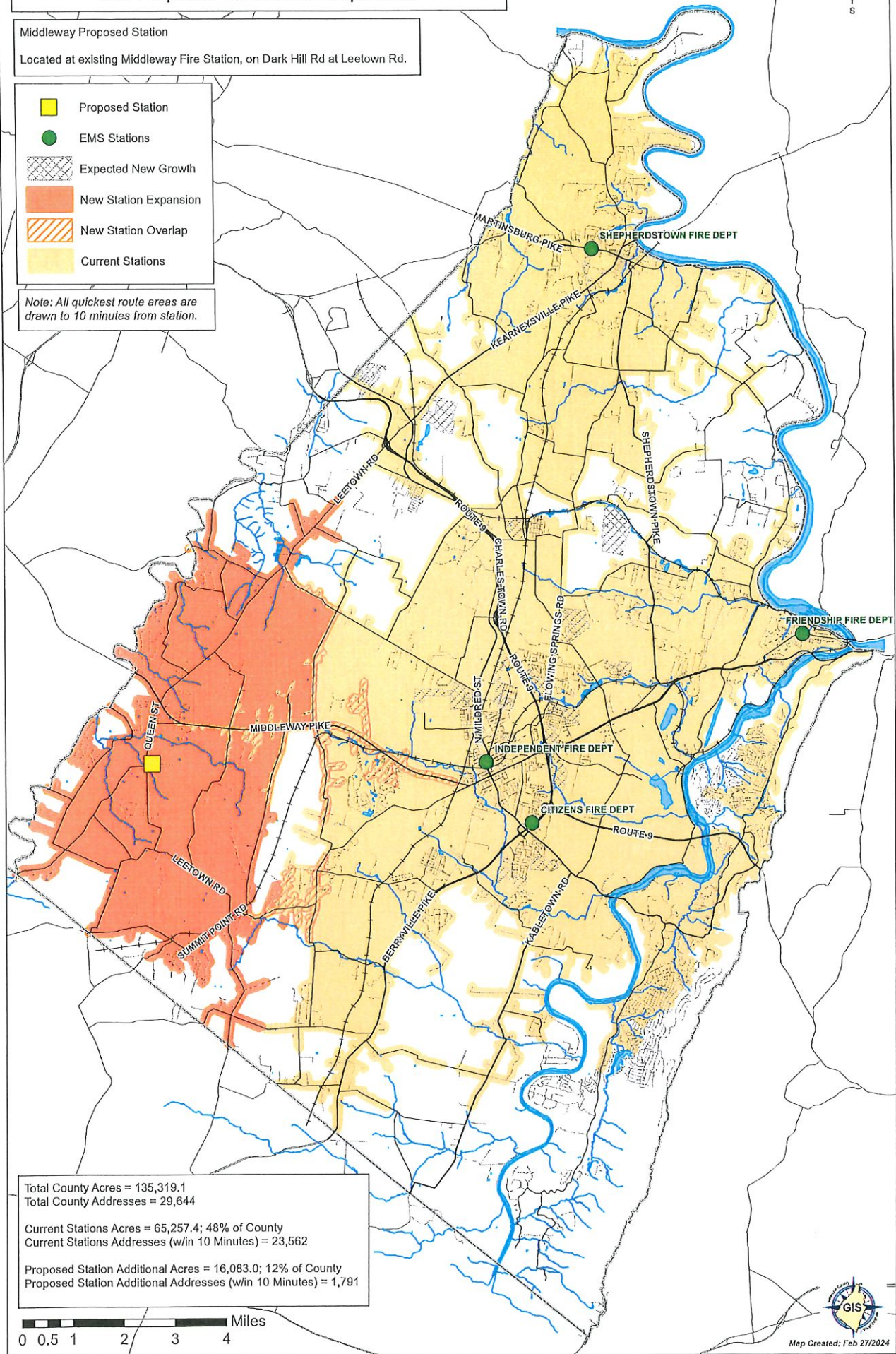


Middleway Proposed Station

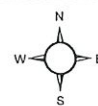
Located at existing Middleway Fire Station, on Dark Hill Rd at Leetown Rd.

- Proposed Station
- EMS Stations
- Expected New Growth
- New Station Expansion
- New Station Overlap
- Current Stations

Note: All quickest route areas are drawn to 10 minutes from station.



Current EMS Stations Quickest Route Response Times and Proposed New Station Expansion

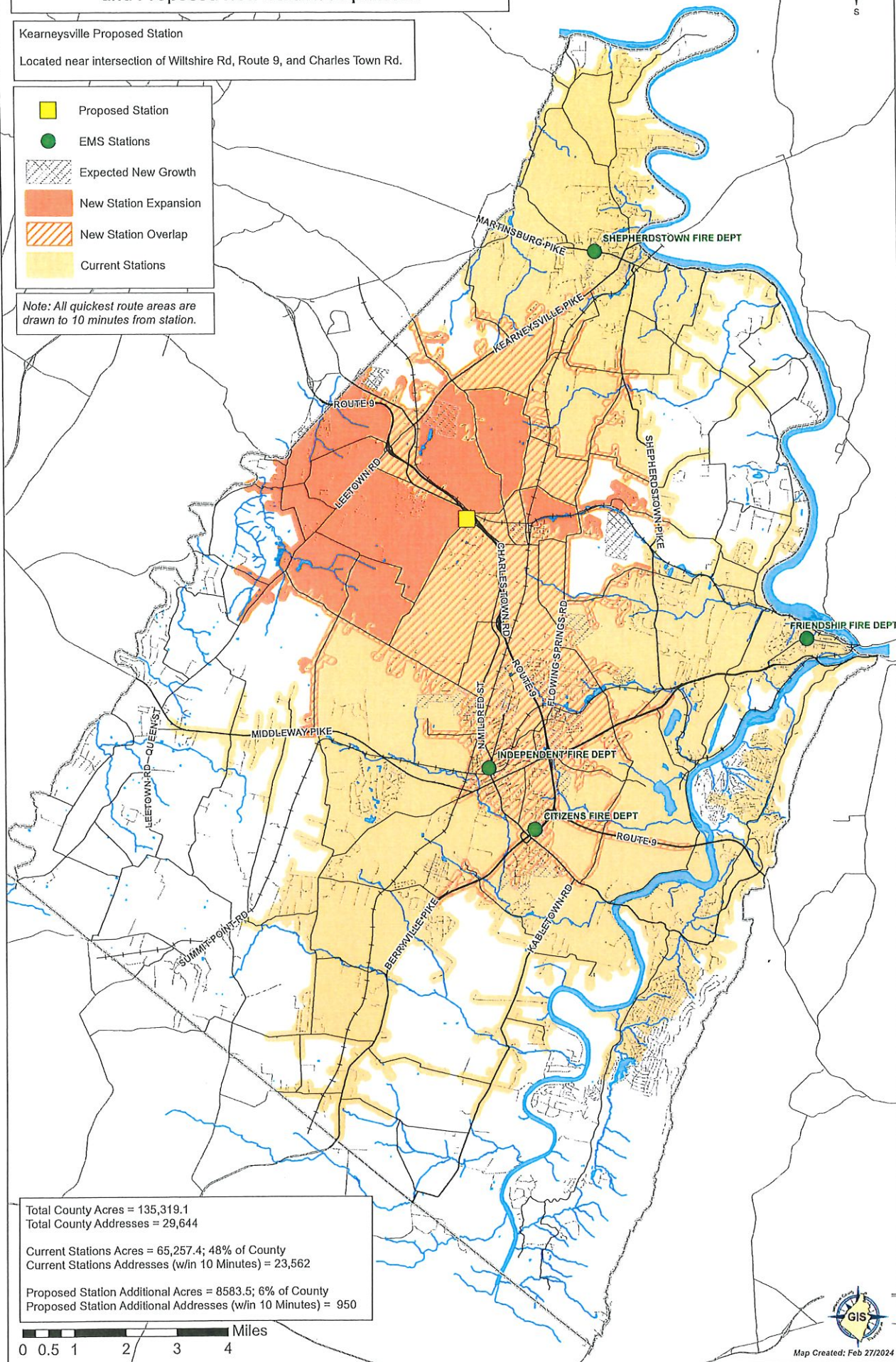


Kearneysville Proposed Station

Located near intersection of Wiltshire Rd, Route 9, and Charles Town Rd.

- Proposed Station
- EMS Stations
- Expected New Growth
- New Station Expansion
- New Station Overlap
- Current Stations

Note: All quickest route areas are drawn to 10 minutes from station.



Total County Acres = 135,319.1
Total County Addresses = 29,644

Current Stations Acres = 65,257.4; 48% of County
Current Stations Addresses (w/in 10 Minutes) = 23,562

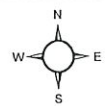
Proposed Station Additional Acres = 8583.5; 6% of County
Proposed Station Additional Addresses (w/in 10 Minutes) = 950

0 0.5 1 2 3 4 Miles



Map Created: Feb 27/2024

Current EMS Stations Quickest Route Response Times and Proposed New Station Expansion

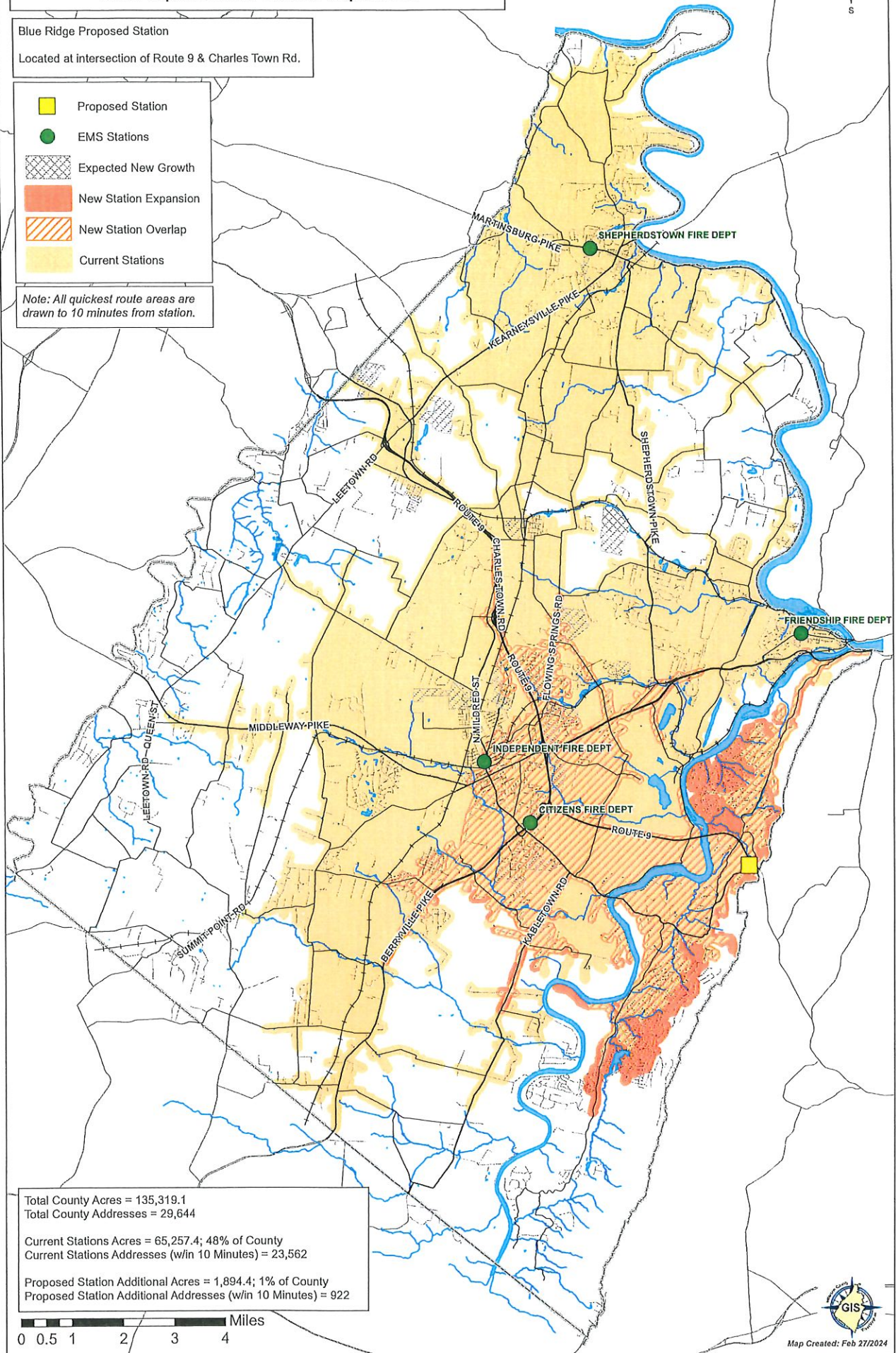


Blue Ridge Proposed Station

Located at intersection of Route 9 & Charles Town Rd.

- Proposed Station
- EMS Stations
- Expected New Growth
- New Station Expansion
- New Station Overlap
- Current Stations

Note: All quickest route areas are drawn to 10 minutes from station.



Total County Acres = 135,319.1
Total County Addresses = 29,644

Current Stations Acres = 65,257.4; 48% of County
Current Stations Addresses (w/in 10 Minutes) = 23,562

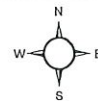
Proposed Station Additional Acres = 1,894.4; 1% of County
Proposed Station Additional Addresses (w/in 10 Minutes) = 922

0 0.5 1 2 3 4 Miles



Map Created: Feb 27/2024

Current EMS Stations Quickest Route Response Times and Proposed New Station Expansion

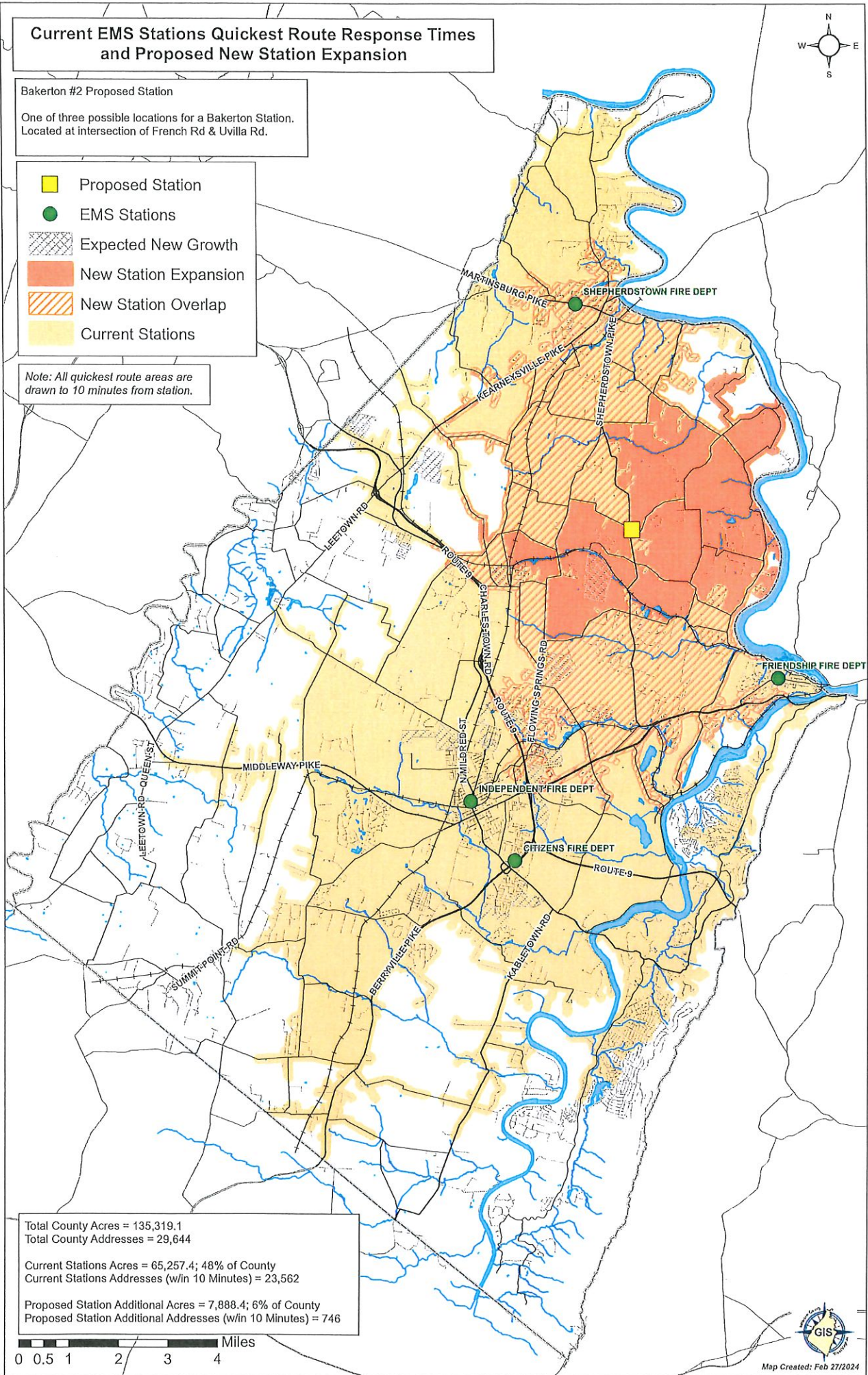


Bakerton #2 Proposed Station

One of three possible locations for a Bakerton Station.
Located at intersection of French Rd & Uvilla Rd.

- Proposed Station
- EMS Stations
- Expected New Growth
- New Station Expansion
- New Station Overlap
- Current Stations

Note: All quickest route areas are drawn to 10 minutes from station.



Total County Acres = 135,319.1
Total County Addresses = 29,644

Current Stations Acres = 65,257.4; 48% of County
Current Stations Addresses (w/in 10 Minutes) = 23,562

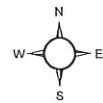
Proposed Station Additional Acres = 7,888.4; 6% of County
Proposed Station Additional Addresses (w/in 10 Minutes) = 746

0 0.5 1 2 3 4 Miles



Map Created: Feb 27/2024

Current EMS Stations Quickest Route Response Times and Proposed New Station Expansion

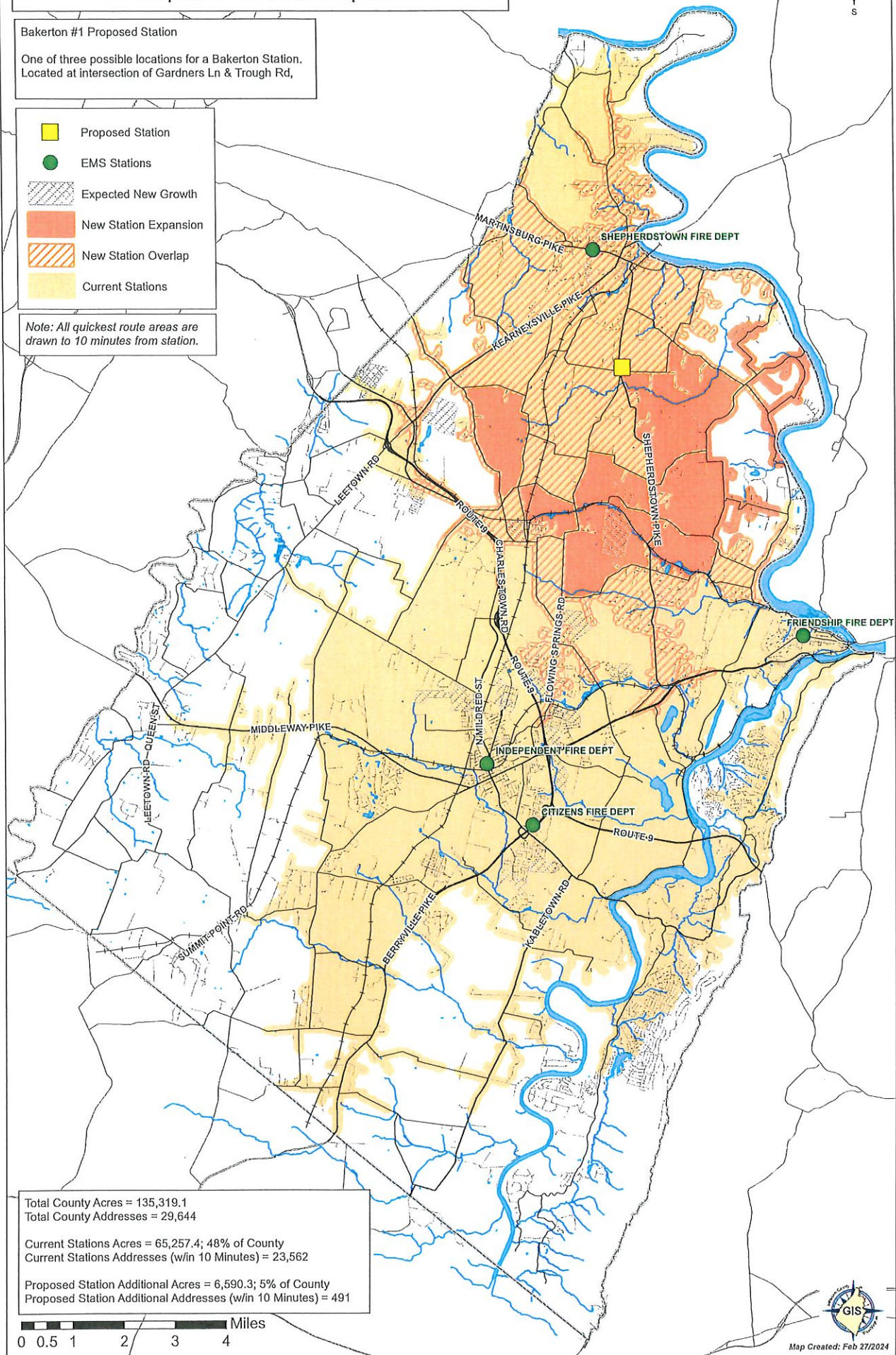


Bakerton #1 Proposed Station

One of three possible locations for a Bakerton Station. Located at intersection of Gardners Ln & Trough Rd,

- Proposed Station
- EMS Stations
- Expected New Growth
- New Station Expansion
- New Station Overlap
- Current Stations

Note: All quickest route areas are drawn to 10 minutes from station.



Total County Acres = 135,319.1
 Total County Addresses = 29,644
 Current Stations Acres = 65,257.4; 48% of County
 Current Stations Addresses (w/in 10 Minutes) = 23,562
 Proposed Station Additional Acres = 6,590.3; 5% of County
 Proposed Station Additional Addresses (w/in 10 Minutes) = 491

0 0.5 1 2 3 4 Miles



Map Created: Feb 27/2024