

# The Transit Situation in Poughkeepsie: a Memo

Kafui Attoh<sup>1</sup> and Siennah Yang

**Summary:** This memo shows that while Poughkeepsie's newly launched transit system may mark an improvement in late night service, it marks an overall decline in service as measured in terms of frequency, mileage, and service to public housing. In addition to providing a more robust analysis of how the previous and current systems compare, the memo ends with four recommendations. These include: 1) reinstating service to the Thurgood Marshall Terraces, and the northside more generally 2) restoring if not increasing frequency on all city routes (especially on CL) 3) rethinking the priorities of both CN/CO routes -- namely adding service to areas with a high density of Section 8 housing, and lastly, 4) recalculating the timetables on the CM route so as to reduce wait time at Innis and Main. Under the newly establish system, residents traveling from points north (ex. Hudson Gardens, Poughkeepsie Commons etc.) to Market and Main, not only must transfer buses -- from the CM to the CL ( a bus transfer was previously unnecessary for this trip), but they must endure an inordinate wait time at Innis and Main.

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## Introduction

The following memo was prepared by Kafui Attoh and Siennah Yang. The memo has two broad goals. The first is to offer a more detailed analysis of how the newly launched city bus service compares with the previous one. The second is to offer a set of recommendations for how the new system might be amended. While there has been considerable debate on the public transit situation in the city, it has thus far remained virtually impossible to answer one basic question: namely, does the recently launched system mark an improvement, or the reverse? This memo should not be interpreted as an attempt to revisit the tumult of the last six months or to reignite past tensions. Rather, its aim is to provide a clear analysis for how this public service can bring its promised benefit to those who most need it.

First, a question. When the public demands “better” transit, how do we gauge what counts as “better?” In almost all cases, the two crucial metrics upon which public transportation systems are evaluated are “coverage” and “frequency.” Framed differently: where does this bus go? And, how frequently does it run? While both frequency and coverage are different, a public transit system that is more frequent is certainly “better” than one that is not. Similarly, a transit system that covers more area and goes more places is certainly “better” than one that goes fewer places or covers less area. Given these two metrics: to what degree is the newly launched system “better”?<sup>2</sup>

## Frequency

### Headways

The most common way of gauging transit frequency is to measure what are called headways. Headways refer to the “time between consecutive trips.” For example, if you catch a bus that comes “every hour” that bus has a headway of 60 minutes. The below table compares the *average* headway of each city route for both the newly launched system and the previous one. Our analysis only included bus routes that provide round trip service at least twice a day (hence the school tripper route was omitted).

Pervious City Route	Avg. Headway time	New City Route	Avg. Headway time
Main Street bus	1hr	CL	1hr 40min
Northside bus	59min	CJ	1hr 42min
Southside bus	52min	CK	1hr 18min
Galleria	1hr	X (Route A&B available)	X
Shoppers Special	1hr	CN* (Monday Only)	3hr 25min
		CO*(Friday Only)	
	X (no equivalent)	CM	1hr 22min

\* Routes CO and CN operate as special shopping routes and only operate once per week

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<sup>2</sup> See discussion of coverage versus frequency debate here: <http://humantransit.org/2015/07/mega-explainer-the-ridership-recipe.html>

Round trips

In addition to calculating the average “time between consecutive trips,” another way of measuring frequency merely requires counting the number of “round trips” available on a given day. In short: how many opportunities over the course of a day would a passenger have to take a particular route from start to finish? The following chart compares the newly launched system with the previous one by counting the number of “round-trips” available per route, per day.

Previous City Route	Number of round trips per weekday	New City Route	Number of round trips per weekday
Main Street bus	12	CL	9
Northside bus	13	CJ	10
Southside bus	14	CK	13
Galleria	8	X (Route A&B available)	
Shoppers Special	8	CN(Monday Only)*	2
		CO(Friday Only)*	
	X (no equivalent)	CM	13

\* Routes CO and CN operate as special shopping routes and only operate once per week.

*Quick take:* As the two charts above indicate, Poughkeepsie’s newly launched city system marks both an increase in average headway time, as well as a decline in total number of round trips per weekday. This translates to longer wait-times, as well as a decreased number of opportunities per day for a given passenger to complete a round-trip.

**Coverage**

Mileage

Perhaps the simplest way of measuring transit coverage is simply to calculate the total “one way” mileage of a given route. Organized by route, the below table, lists 1) total route mileage 2) total route mileage within Poughkeepsie city limits and 3) total route mileage outside of the city. The first chart offers mileage data for the previous city system, the second for the new system, and the last chart for the new system on Tuesdays, Wednesdays, Thursdays and Saturdays. Since routes CO and CN only run on Mondays and Fridays, for most riders, on most days, the new system will most clearly resemble the schedule for Tuesday, Wednesday, Thursday and Saturday.

*Old City Routes (with county system)*

	Total Mileage	Mileage in city of Poughkeepsie	Non-city Mileage
Main Street bus	9.05	6.63	2.47
Northside bus	12.26	3.52	8.74
Southside bus	10.58	7.55	3.03
Galleria	8.57	3.47	5.10
Shoppers Special	8.32	4.10	4.22
County System <sup>3</sup>	200.78	30.87	170.11
Total	249.56	55.88	193.67

*New City Routes (with county system)*

	Total Mileage	Mileage in city of Poughkeepsie	Non-city Mileage
CL	4.96	1.94	3.02
CJ(north end bus)	15.12	2.25	12.87
CK (south end bus)	9.27	4.97	4.3
CM	9.56	4.70	4.86
CO (Friday only)	7.97	4.96	3.0
CN (Monday only)	6.51	4.1	2.41
County System	200.78	30.67	170.11
Total	254.17	53.60	200.58

As noted earlier, since routes CO and CN only operate once per week, a more accurate comparison of the two systems means focusing on service levels on the four days of the week in which these “special” services are unavailable. <sup>4</sup>

*New City Routes (Tuesday, Wednesday, Thursday, Saturday)*

	Total Mileage	Mileage in city of Poughkeepsie	Non-city mileage
CL	4.96	1.94	3.02
CJ(north end bus)	15.12	2.25	12.87
CK (south end bus)	9.27	4.97	4.3
CM	9.56	4.70	4.86
County System	200.78	30.67	2.41
Total	239.69	44.53	195.16

<sup>3</sup> Refers to any and all county routes with any mileage in city,

<sup>4</sup> Mileage calculations/bus routes are approximate estimates and were produced using ARC GIS’ mileage calculator.

*Percentage change in one-way mileage from original system*

	New City System (Monday and Friday)	New City System (T,W,TH, Sat)
% Change in Total Mileage	+1.8	- 3.9%
%Change in Total City Mileage	- 4.08%	- 20.3%
%Change in Total Non-City Mileage	+3.5%	- 0.7%

*Quick take:* While the new system marks a slight increase in total mileage, on Tuesdays, Wednesdays, Thursdays and Saturdays, mileage falls in all categories. Most notable is the 20% decrease in route mileage in the city of Poughkeepsie on T,W, TH, and Sat. While total route mileage decreases in the town/county on those days, it only falls by 0.7%. On Mondays and Fridays, route mileage in the city decreases while non-city mileage increases. In each instance route mileage is being transferred away from city to town/county.

*Route Maps<sup>5</sup>*

In addition to measuring route mileage, an equally important gauge of coverage requires simply opening a map. Below, Siennah and I have produced 16 maps. With the exception of the first set of maps (which are largely for reference purposes) the maps are organized by day. Since CO/CN only operate two days a week, we have created maps that reflect that fact.<sup>6</sup> In the demographic maps on pages 5-9 (of attached Pdf), we zoomed in on Middle Main because of its' statistically high Black, Hispanic and low-income population.

**SEE ATTACHED PDF**

*Quick take:* The maps give some visual corroboration to the previous discussion of route mileage. Additionally, they also point to the impact of the new service on the cities minority and low income populations. As with the mileage data, the loss of service on Tuesdays, Wednesdays, Thursday and Saturdays is notable -- particular in the northside and Middle Main. One clear area of concern is the now apparent issue of transfers and trip length for residents living on the northside. For such residents, any trip to any major business or commercial hub (Market and Main/ Hyde Park Stop and Shop, etc) will now require a transfer.

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<sup>5</sup> Analysis only included bus routes that operate more than twice a day (omitted school tripper)

<sup>6</sup> Analysis of city of Poughkeepsie is done by census block. Analysis of county is done by block group

Coverage of Public Housing

The Poughkeepsie Housing Authority currently manages 5 public housing developments. As many studies have noted, high levels of poverty are strongly correlated with low rates of car ownership. Given the nature of public housing, cities are often encouraged to ensure that all public housing developments received adequate service via public transit.<sup>7</sup> The below chart lists Poughkeepsie’s current public housing stock and which current routes now serve them as well as which city routes served them under the previous system.

	Previous City Route	New City Route	T,W,TH, SAT
Hudson Gardens Apartments <i>120 Hudson Avenue</i>	Northside	CN/CO/ CM	CM
Thurgood Marshall Terrace <i>109 Delafield Street</i>	Main Street	none	none
Martin Luther King Jr. Garden Apartments <i>159 Washington Street</i>	Northside/ various county routes	CJ/ various county routes	CJ/various county routes
Dr. Joseph Brady Garden Apartments <i>11 Boulevard Knolls</i>	Main Street	CL	CL
Phillip Allen Swartz Apartments <i>378 Mansion Street</i>	Northside	CN/CO	none

**Summary and Recommendations**

Summary of Findings

One of the areas in which the new system excels, is with respect to late night service. This is no small adjustment and is an unquestionable advance from the previous system. At the same time, however, overall service -- as measured in frequency, and coverage -- has decreased. Frequency and coverage are not the only ways to evaluate public transit. No less important are questions of affordability, safety, equipment and -- as should be clear from the new service --“hours of operation.” The focus of this memo has been on frequency and coverage largely because they are generally understood to form the backbone of any successful system. Given this, the below findings speak directly to these metrics.

- 1) With respect to frequency, for transit riders in Poughkeepsie, the newly launched system -- on average -- provides less frequent service than the previous system.

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<sup>7</sup> See Poughkeepsie Plenty report: [http://www.newpaltz.edu/benjamincenter/discussion\\_brief\\_11.pdf](http://www.newpaltz.edu/benjamincenter/discussion_brief_11.pdf)

This can be measured in terms of headway times -- that is the time between consecutive trips -- or it can be measured by simply counting the number of trips -- from start to finish -- available per route per day. *In both respects the recently launched system marks a reduction in service.*

- 2) With respect to coverage, the picture is more mixed. In terms of mileage, the new system sees an increase in total one-way mileage -- 254.17mi compared to the 249.56mi of the previous system. While the overall one-way system mileage increases, the total mileage within the city of Poughkeepsie actually decreases -- 55.88mi (old system) to 53.60mi (new system). That difference is rather small (4.08%) until you compare route mileage on Tuesdays, Wednesdays, Thursdays and Saturdays. Here the total mileage of the new system drops from 249.56mi to 239.69mi (3.9%). The total mileage in the city of Poughkeepsie drops even more dramatically -- from 55.88mi to 44.53mi (by 20.3%). *The newly launched system marks something of a direct transfer of route mileage from the city to the town and county.*
- 3) The maps offer something of a visual verification of the previous findings. Namely that on Mondays and Fridays overall service coverage remains fairly consistent with what Poughkeepsie residents have enjoyed in the past. Indeed, there is expanded service to the Town of Poughkeepsie and Hyde Park under the new system. On Tuesdays, Wednesdays, Thursdays and Saturdays, however, the maps corroborate the extent of the lost service. *As the demographic maps show, the old system had considerably more coverage, and buses in both Middle Main (large Hispanic Pop.) and the northside (large African American Pop.).*
- 4) Transportation accessibility to public housing is also mixed. Perhaps starkest change is the loss of service to the Thurgood Marshall Terraces. Previously this public housing development on Delafield Street was served by the Main Street bus. Under the recently launched system, residents will have to walk to Washington Street. Similarly, on Tuesdays, Wednesdays, Thursdays, and Saturdays, residents of the Phillip Allen Schwartz development will also see the loss of their service. Under the previous system, residents of this development were served by the Northside bus. Under the newly launched system, they are served by the CO/CN -- which runs exclusively on Mondays and Fridays. Where there are gains under the new system, they come with qualifications. The Hudson Gardens development is now served by two routes instead of one. This is an improvement. With that said, service on Tuesdays, Wednesdays and Thursdays may provide slightly inconvenient. Indeed, for riders trying to reach Market street -- where many residents go to access social services -- the new trip may be considerably longer given that riders will now have to transfer buses. For instance, to get from the Hudson Garden Apartments to the Department of Family Services will now require two buses instead of one (riders will take the CM to Main and Innis and then transfer to the CL). Indeed, this is the case for much

of the northside. For northside residents traveling to Main and Market, under the new system, it is now necessary to transfer buses.

### Recommendations

The below recommendations are intended to ensure that the recently launched city system is at least comparable (in term of frequency and coverage) to the previous system. There are obviously many ways that the new system might be amended to exceed previous service levels or to stand out as a regional exemplar of sustainable transit. At this stage, however, the recommendations are more modest -- namely, they involve ensuring that Poughkeepsie residents do not get *worse* service than they are used to.

- 1) Provide service to Thurgood Marshall Terraces.

In terms of priorities, this seems to be the most important. Residents of this development have lost service, and they are precisely the demographic that typically relies on public transit to access basic services. One option would be to return to the proposed “route 4” in the draft 2008 Abrams-Cherwony and associates report.<sup>8</sup> Another idea would be to do this as part of a larger expansion of northside service -- and especially a route providing northside residents more direct service to Market and Main.

- 2) Restore frequency on all routes (especially CL)

In the 2009 Abrams-Cherwony and Associates full transit report to the DCTC, the report’s authors divide Dutchess County into four tiers. Tier 1 communities are communities that should receive fixed route service at a minimum of 30 minute intervals. Tier 2 communities are communities that should receive fixed route service at 60 minute intervals. Tier 3 and 4 communities are communities that ought to receive service every 120 minutes. In the report, both the city and the town of Poughkeepsie are deemed Tier 1 communities.<sup>9</sup> The newly launched system has frequencies that in no way approach the 30 minute intervals suggested. Indeed, the current system treats Poughkeepsie as if it were a Tier 3 community akin to communities such as Millbrook. To the degree that the county faces fiscal constraints, the authors of this memo suggest that increasing the frequency on the CL would be a small step in the right direction. Based on a 2007 study done by the same consulting firm,<sup>10</sup> it was noted that of all the city routes, Poughkeepsie’s Main Street route had the highest farebox revenue ratio (30.77%) and was among the top two routes (northside) in terms of total daily ridership. Given the demand for this service, there is little reason that the frequency should be this low.

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<sup>8</sup> See here: [http://pat.bigk12603.com/DOCUMENTS/PDF/PDCTC/PDCTC\\_LOOP\\_COP-DraftServProp072008.pdf](http://pat.bigk12603.com/DOCUMENTS/PDF/PDCTC/PDCTC_LOOP_COP-DraftServProp072008.pdf).

<sup>9</sup> <http://www.co.dutchess.ny.us/CountyGov/Departments/Planning/tdpfinalreport2009.pdf>

<sup>10</sup> <http://www.co.dutchess.ny.us/CountyGov/Departments/Planning/tdpirrdapok.pdf>

### 3) Rethink role and priorities of CN/CO

At current, the CO/CN function as special shoppers' services that operate Monday and Friday (exclusively). They provide specially catered service to a select number of low income/senior housing developments. In some instances, the service seems appropriately targeted. In other instances, however, there are both conspicuous absences and redundancies. An example: in addition to servicing the Manor at Woodside -- which already provides complimentary transportation service to its paying members -- it is unclear why a similar service is not provided to residents at the Thurgood Marshall Terraces on Delafield, or to residents of the Rip Van Winkle development (section 8). Directing transportation service to developments which do not already provide complimentary paratransit seems a better use of resources.

### 4) Rethink timetable for CM

One of the benefits of a hub and spoke transit system is that all routes begin and end at some major commercial center. Under the previous system, all routes either began or would end at Main and Market -- in close proximity to many of the city's social services. With the launch of route CM, the new system departs from this model and it is unclear why. More troubling still is the fact that the current timetables are misaligned with predicted demand. Let's say you are a resident of Hudson Garden Apartments on Hudson Avenue and you need to get to DCSC on Market Street. As of today, the trip will require that you take the CM bus and transfer to the CL at Innis and Main. If you take the 7:55am bus from Weed and Smith Street and arrive at Worrall and Main at 8:19am, you will need to wait an additional 45 minutes for the next Westbound CL bus which will depart from that same intersection at 9:33am. According to the current schedule, the westbound CL is scheduled to leave at 8:16 -- three minutes before the CM is scheduled to arrive. For northside residents wishing to access Main and Market, the newly launched system is inefficient (to verify the problem please see schedules on current website). Under the previous system, there was no need for northside residents to transfer buses to access Main and Market. To the degree that a transfer was necessary -- for example, to reach the shopping districts to the north, south and east -- they occurred at Main and Market. Rethinking the timetables for the CM is a necessary first step, but it seems that there is also a broader need to rethink the wisdom of moving away from a more traditional hub and spoke system.

4a) Related to this last recommendation is yet another suggestion with respect to timetables. One of the forgotten benefits of the previous system and of the hub and spoke model more generally is the benefit of "legibility." In Poughkeepsie that took the following form--namely, on any given weekday, buses would arrive at the Market Street bus hub at two times -- the top of the hour (12:00, 1:00, 2:00) or at the bottom of the hour (12:30, 1:30, 2:30). The benefit of writing schedules as such is not only that it is easy to remember, but it allows bus drivers to immediately direct passengers to the right bus and for passenger to transfer buses in a reasonable

amount of time. The newly launched system abandons this model and indeed the CL no longer stops at the Market street hub at all. Rather than having a fixed time that all buses converge at one place -- so as to transfer -- the new system offers a far less fixed schedule, thus making transfers more cumbersome.

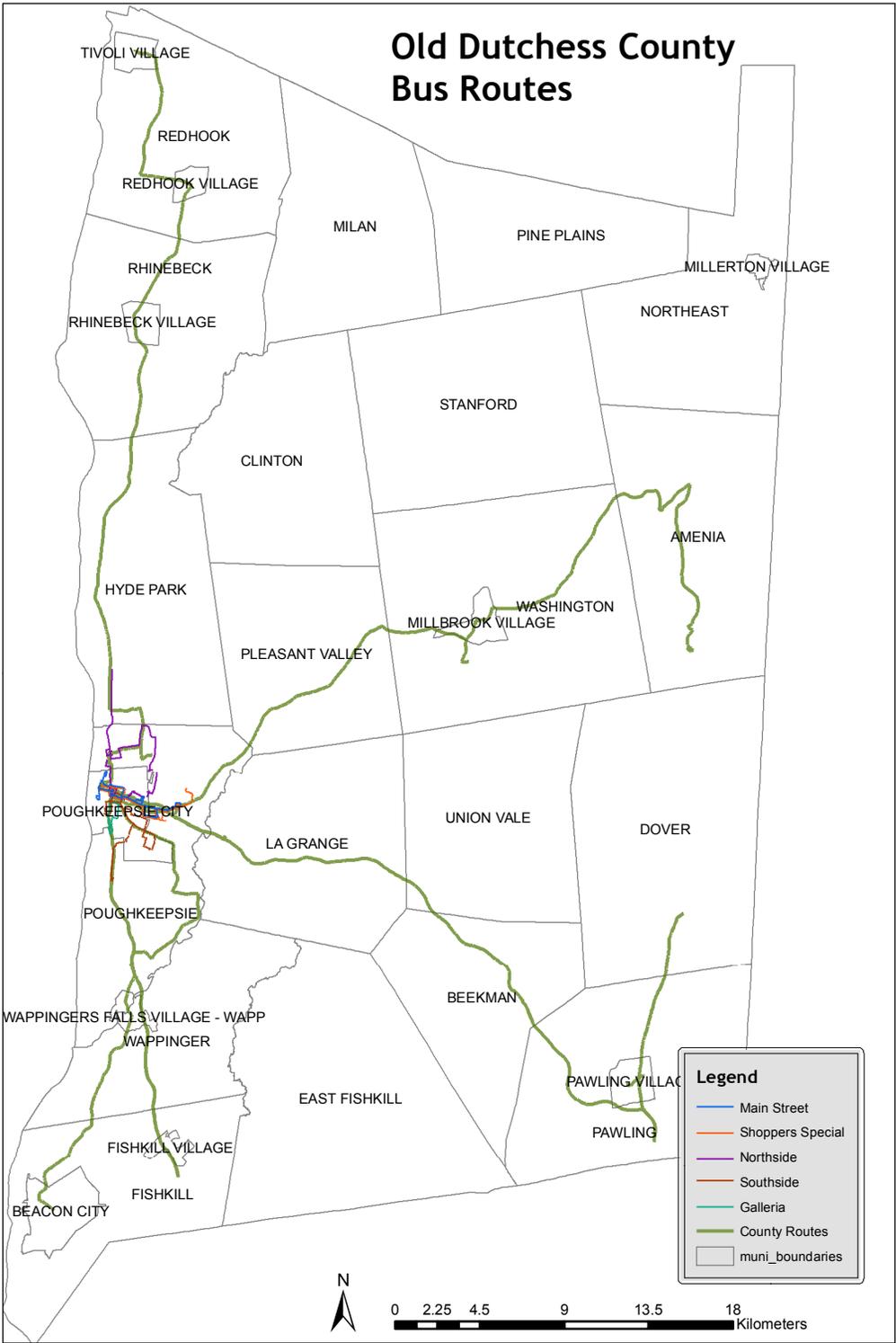
All Maps Created by Kafui Attoh and Siennah Yang

Projection: Transverse Mercator, NAD 1983 State Plane New York

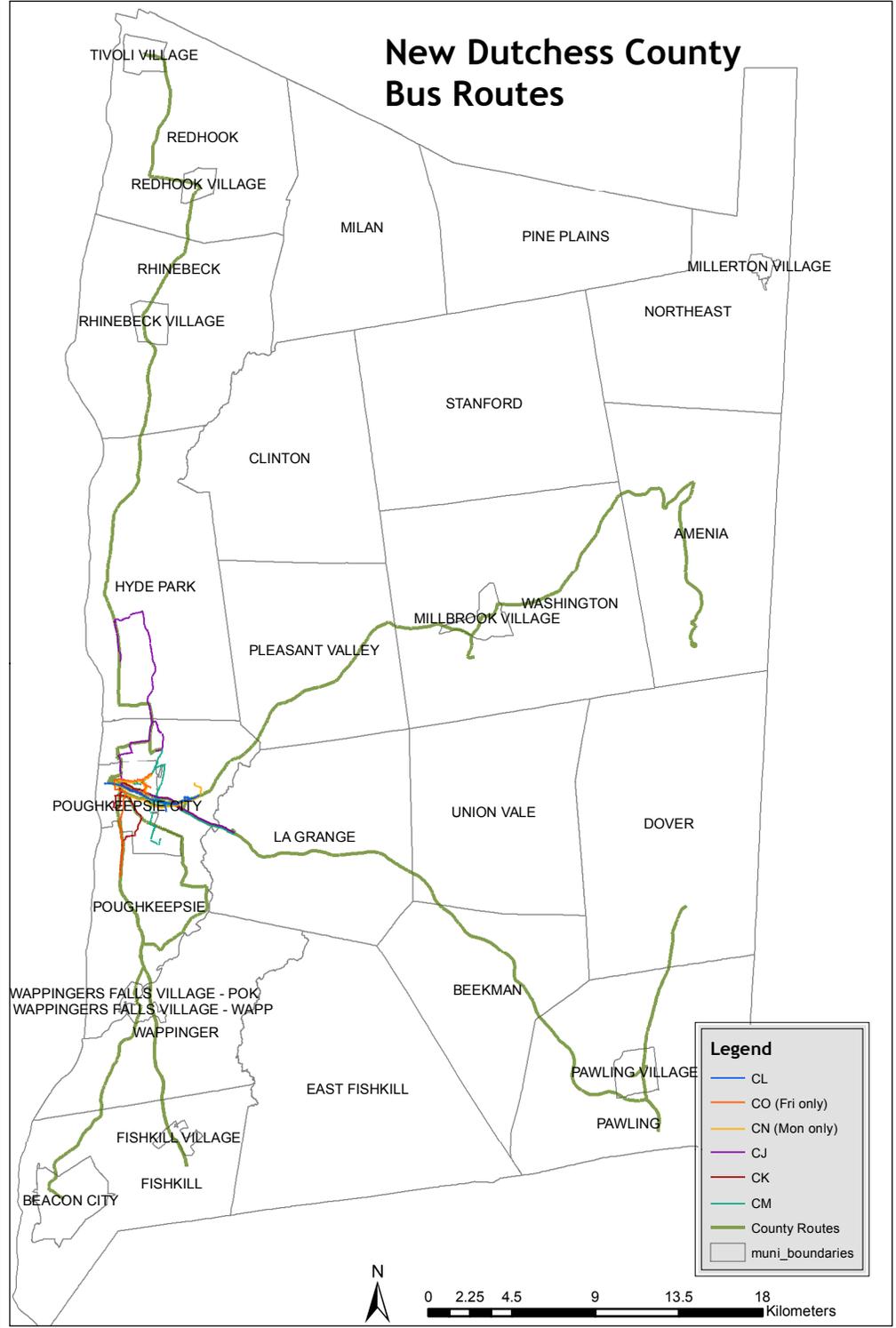
Data Source: U.S. Department of Commerce, U.S. Census Bureau 2013 and 2015 American community Survey Estimates by block group, 2010 US Census by census block, city of Poughkeepsie.

Acknowledgement: Joshua Simons from SUNY New Paltz Benjamin Center for providing the base maps of the attached demographic maps, Susan Grove for her insight and Neil Curri for GIS assistance.

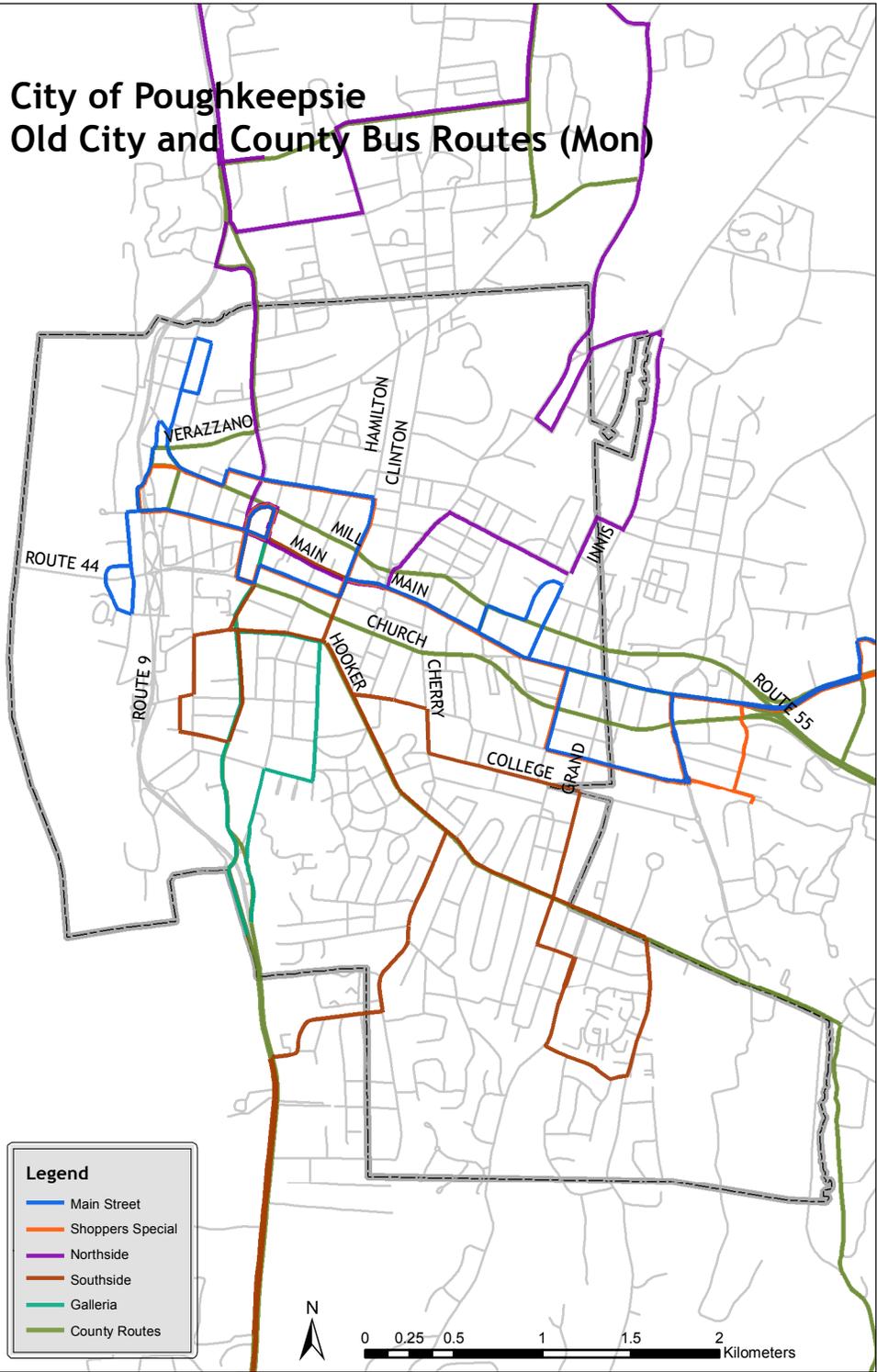
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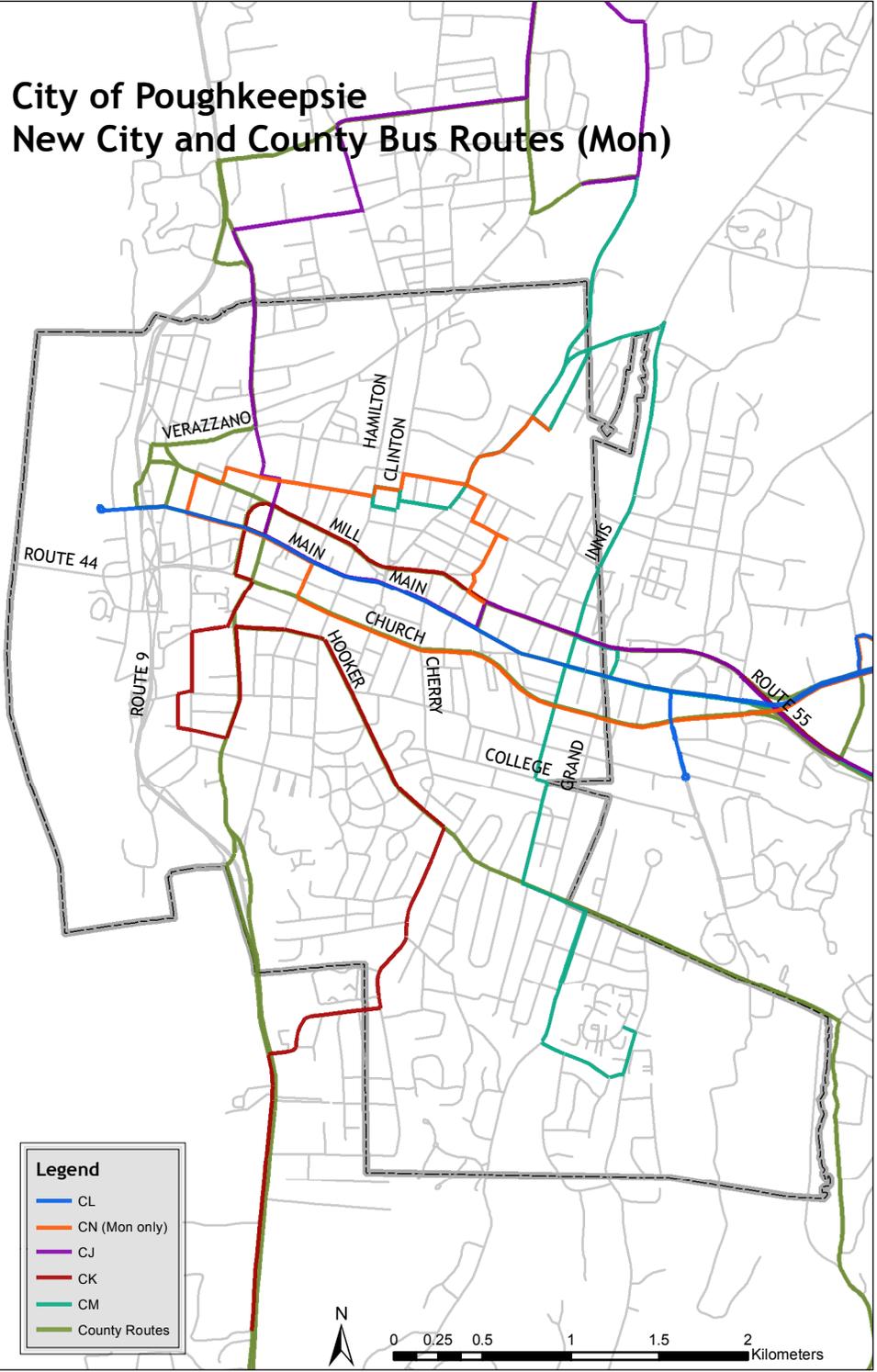
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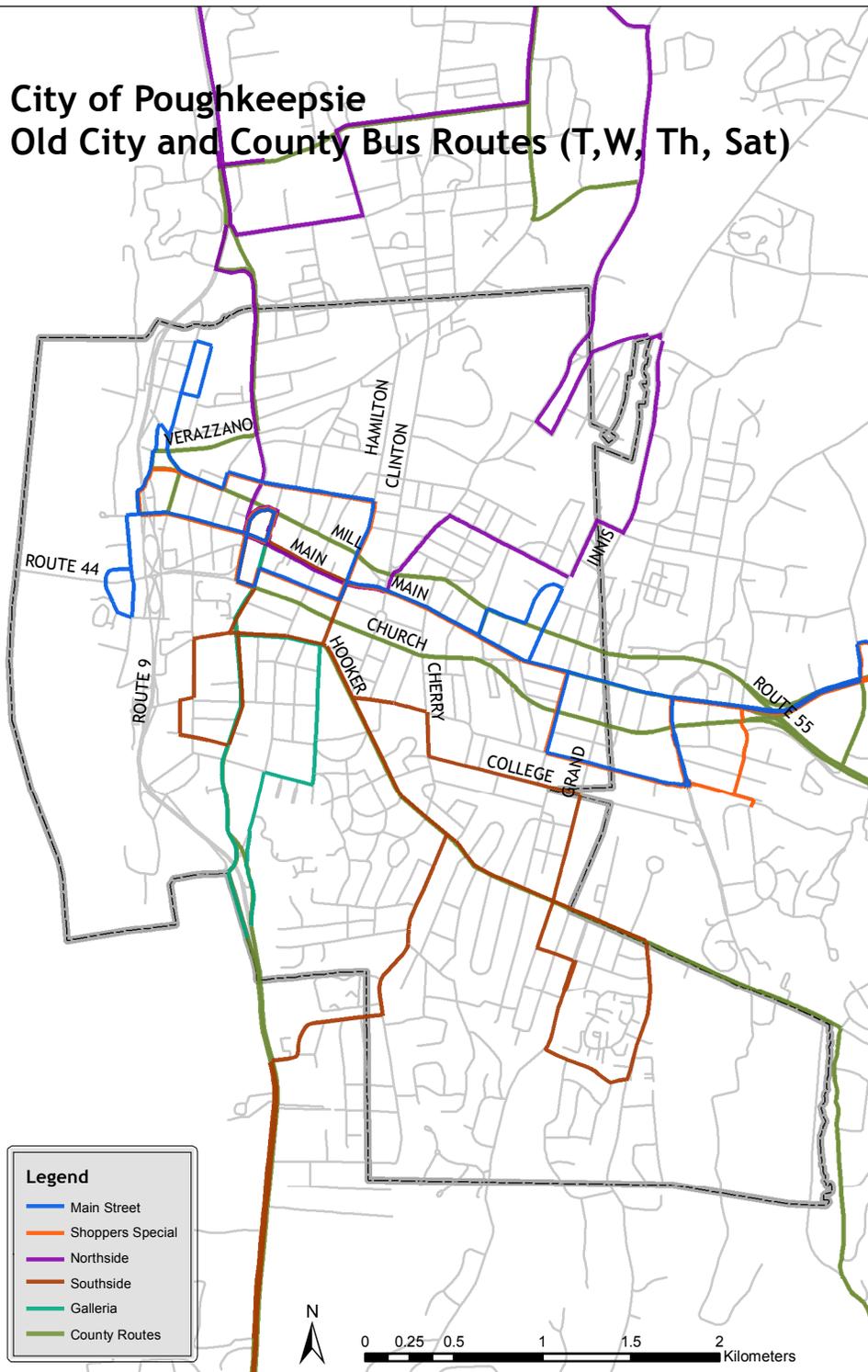
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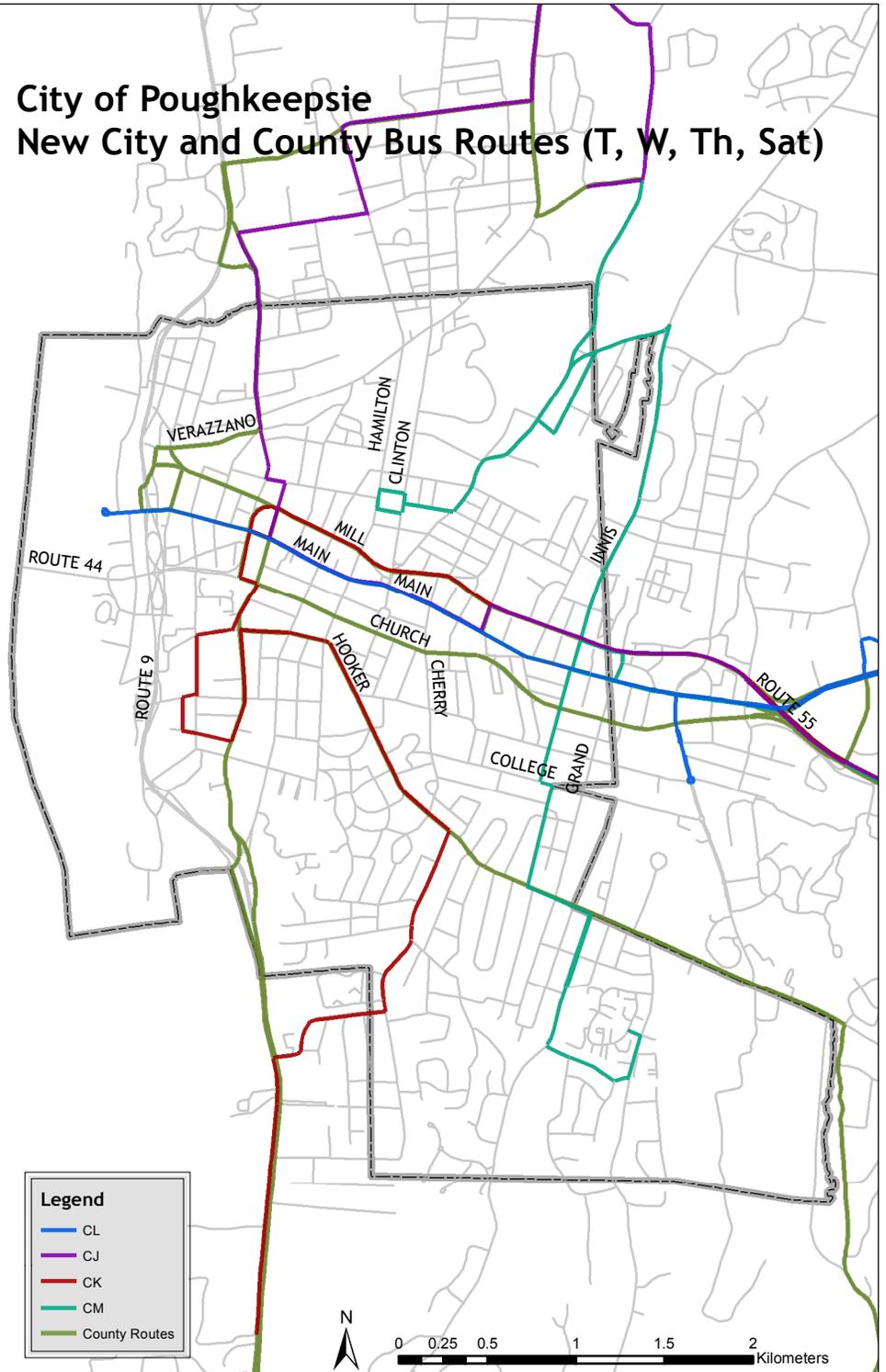
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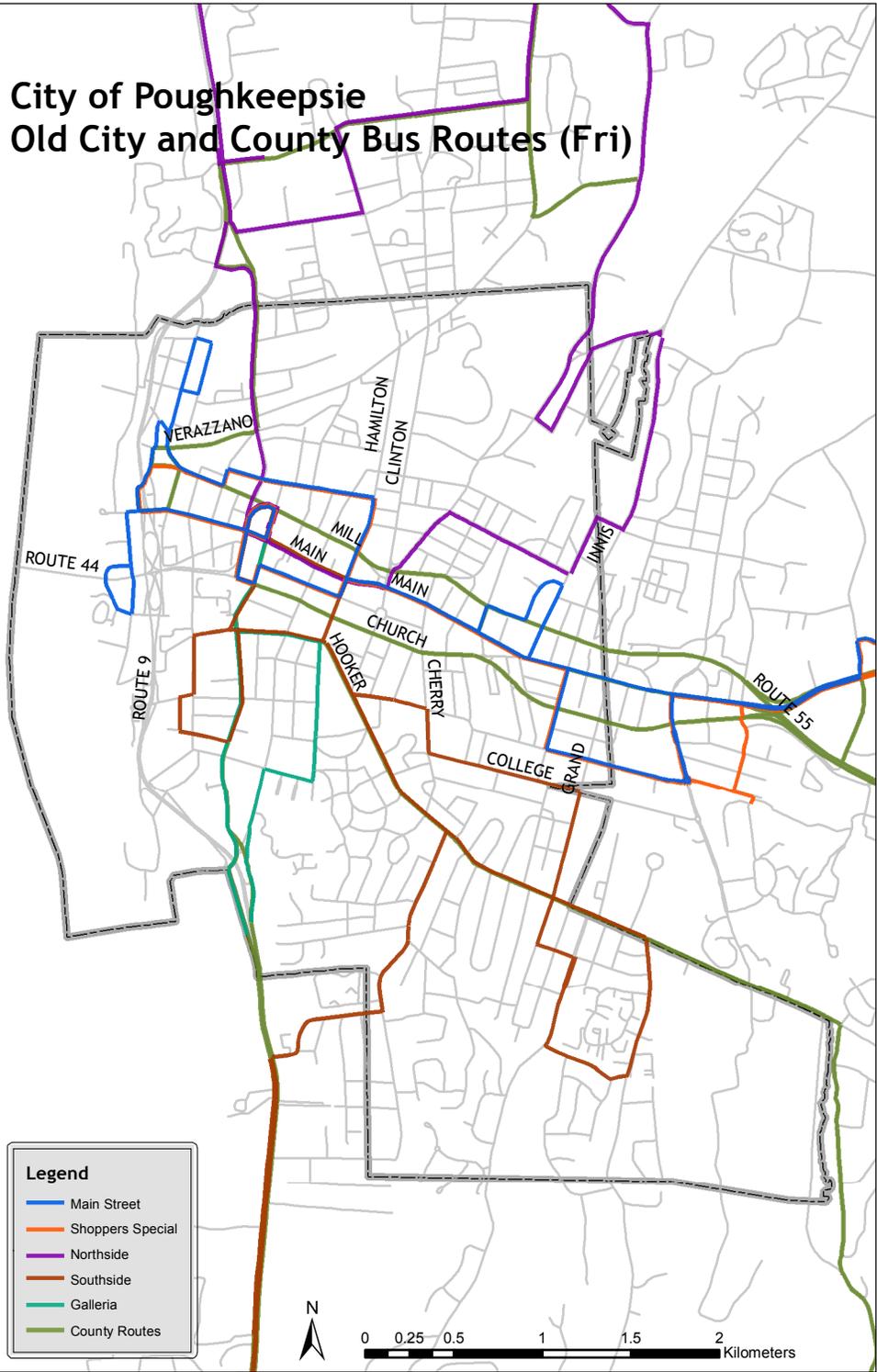
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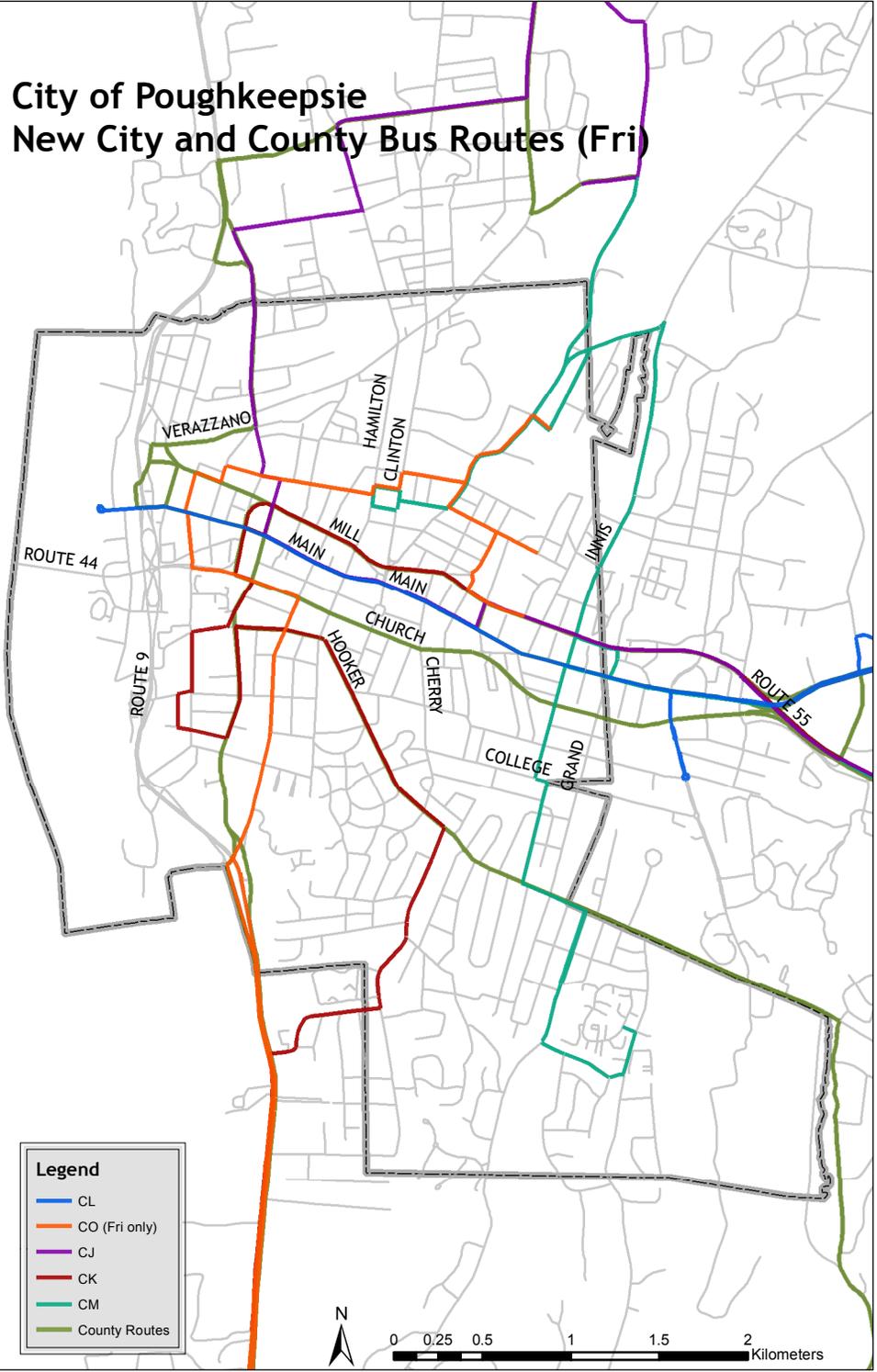
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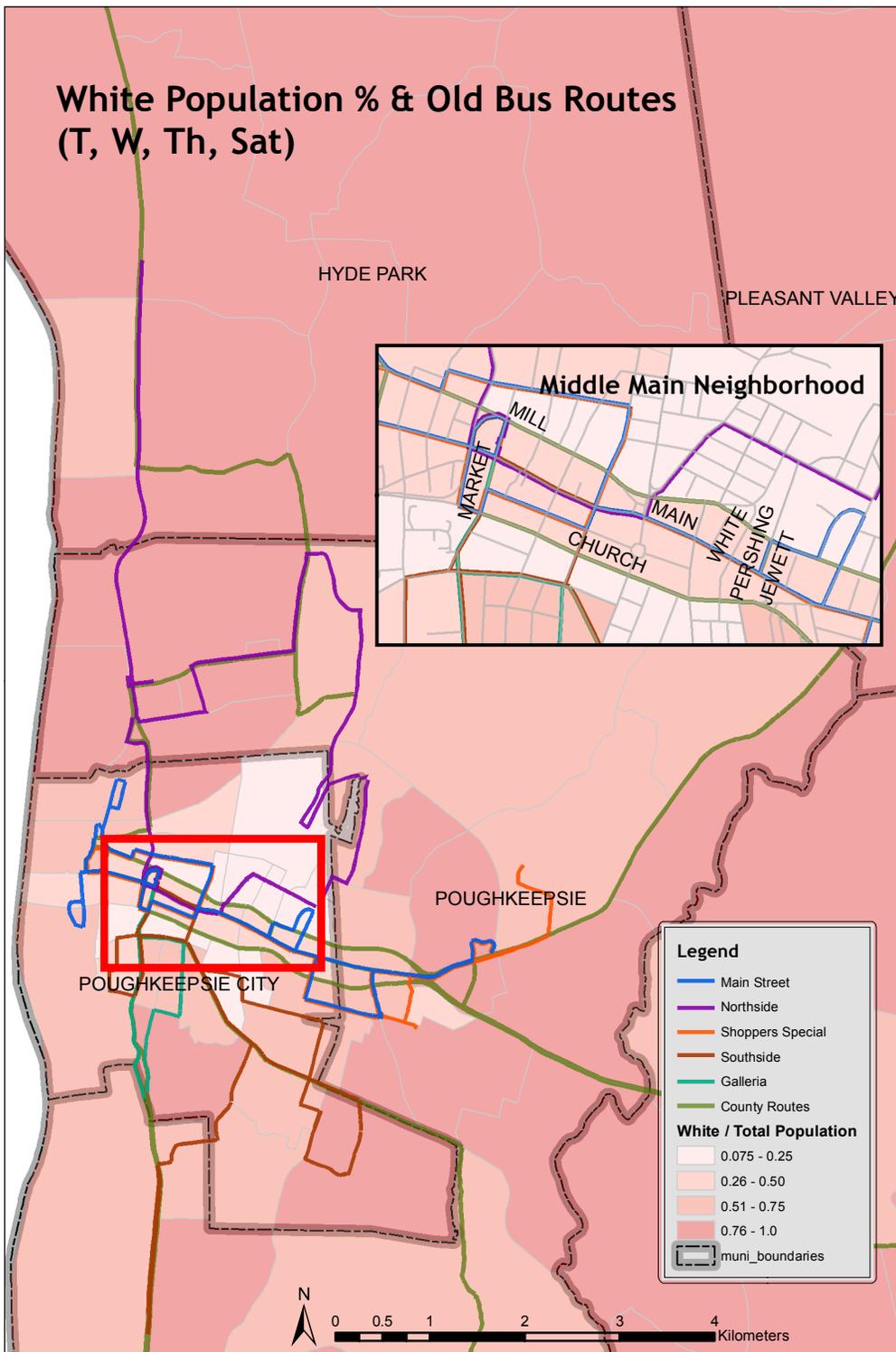
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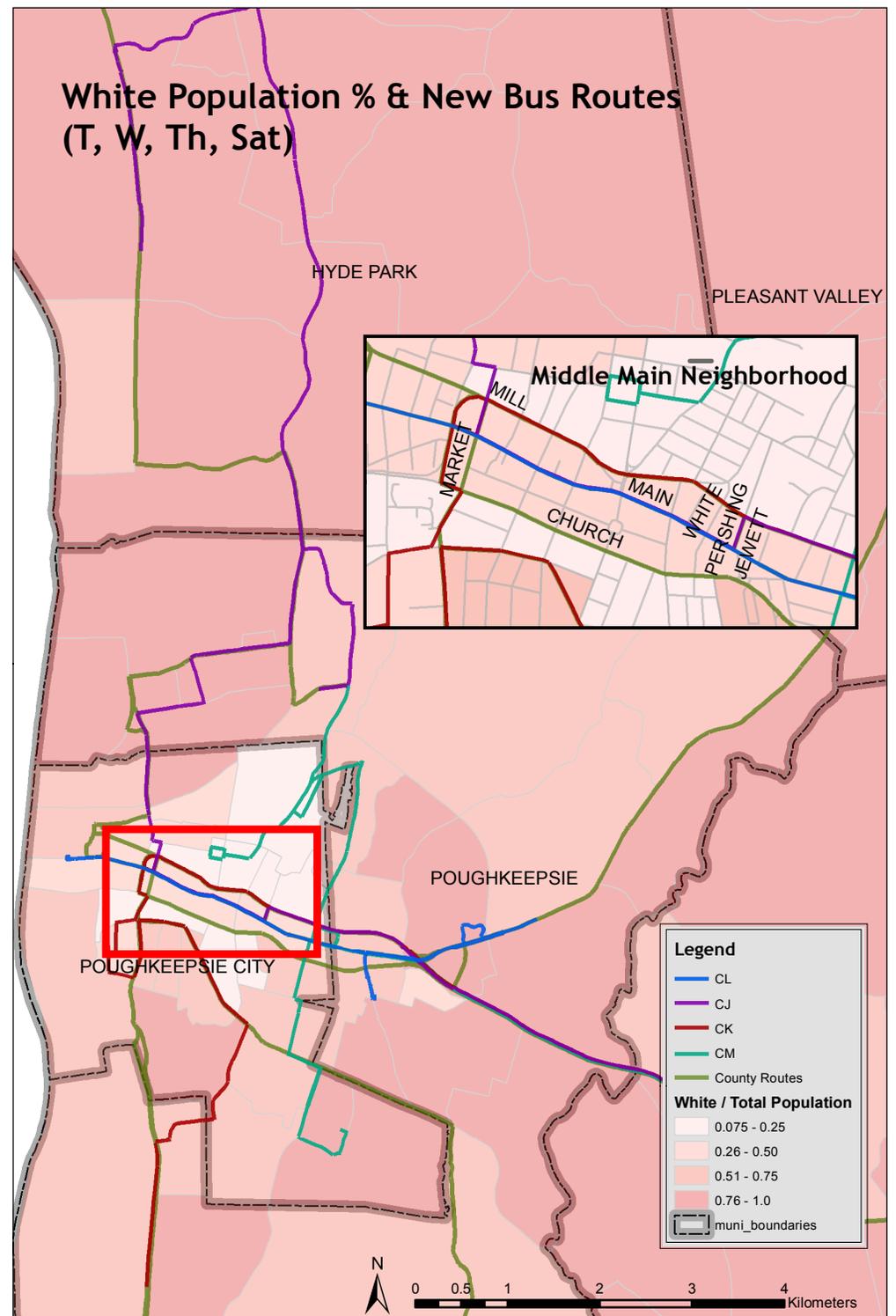
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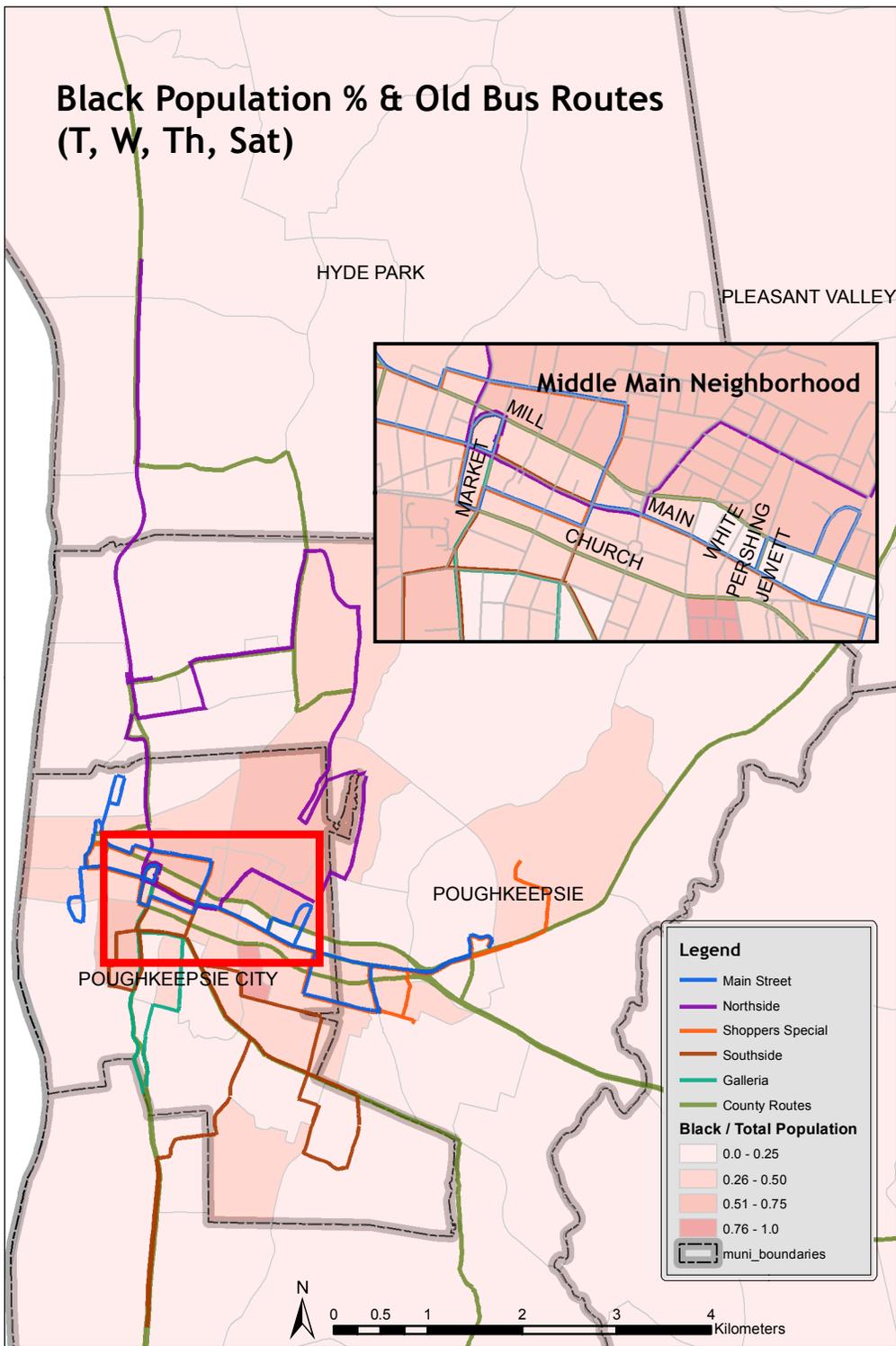
# White Population % & Old Bus Routes (T, W, Th, Sat)



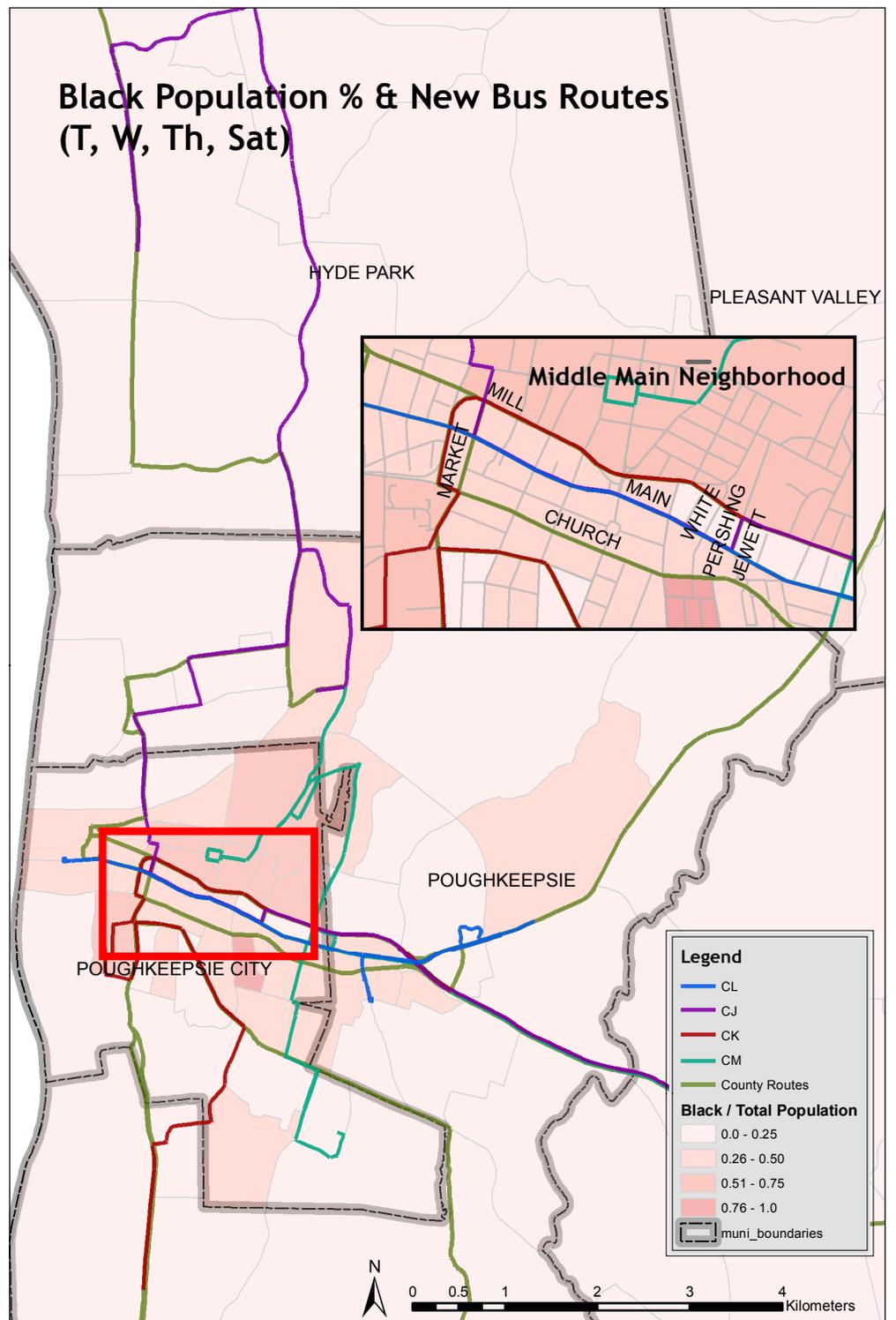
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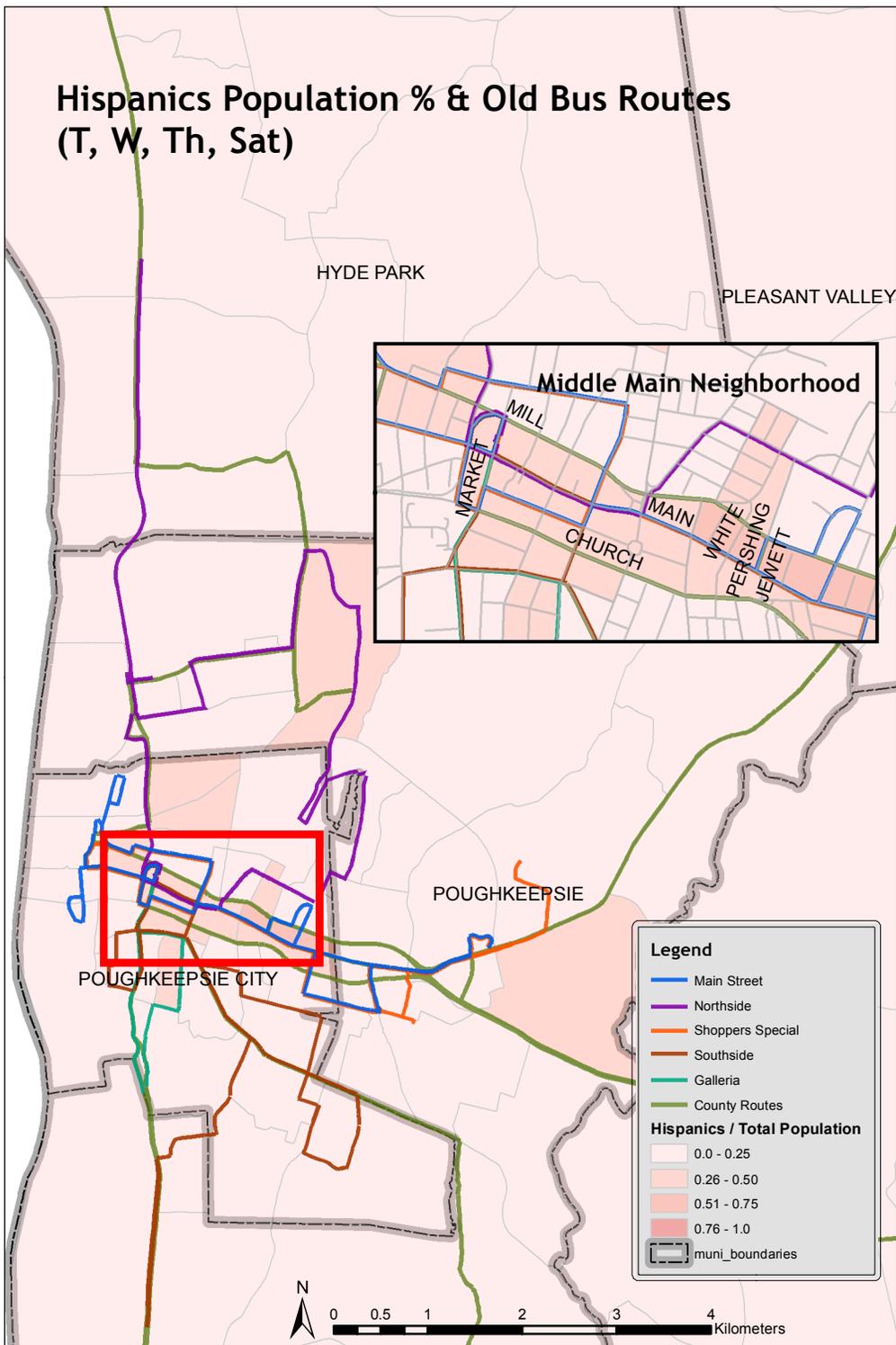
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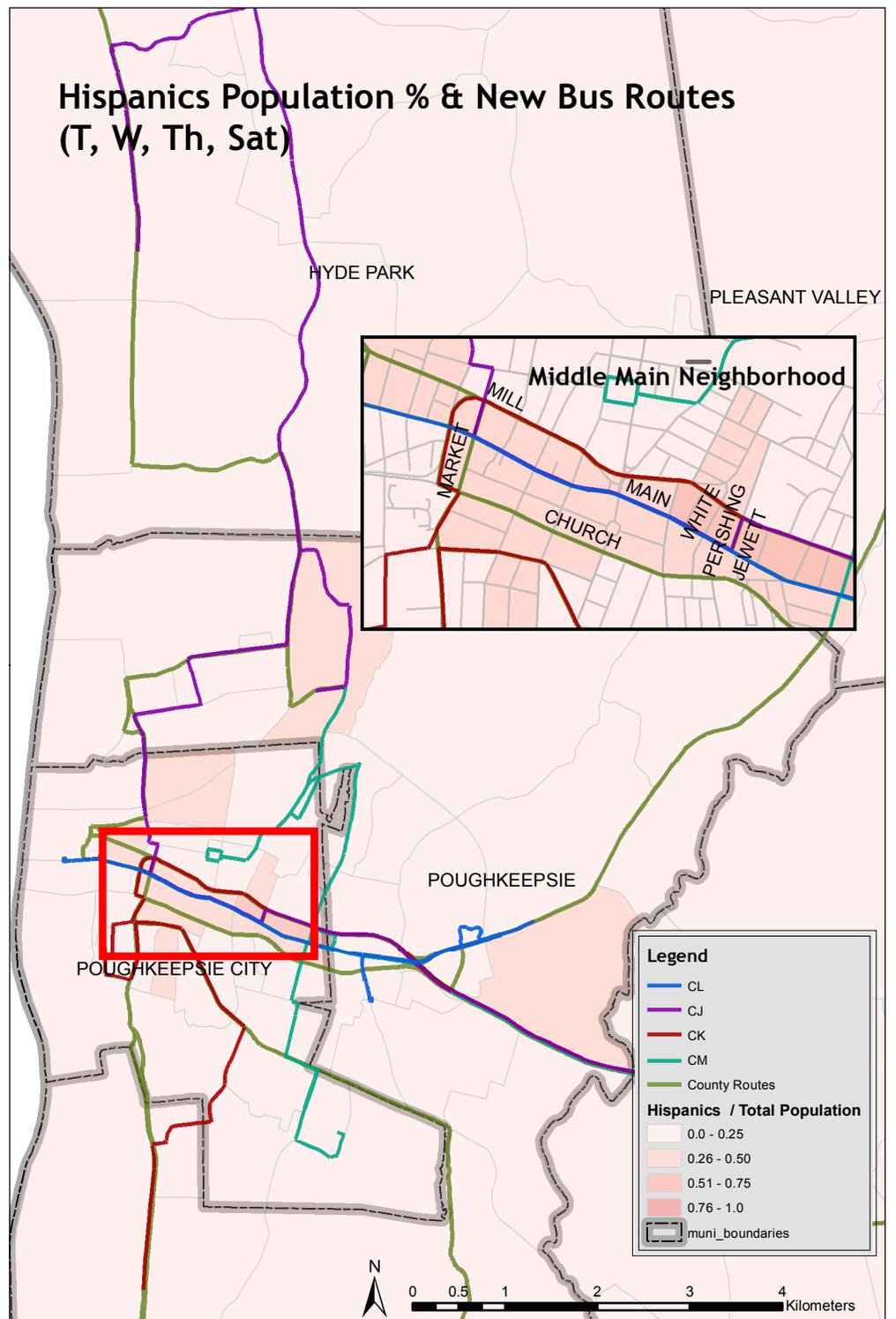
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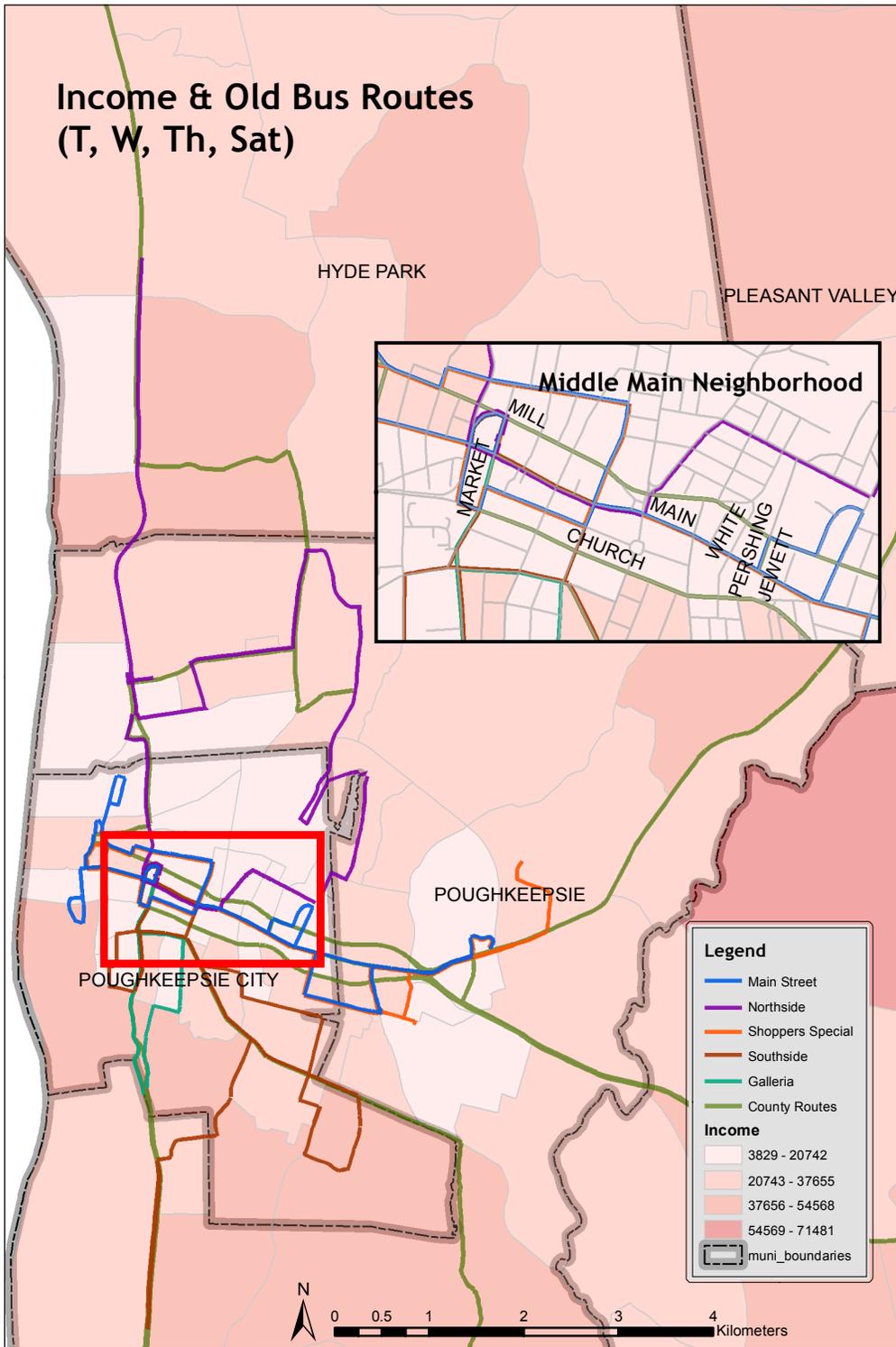
# Hispanics Population % & Old Bus Routes (T, W, Th, Sat)



# Hispanics Population % & New Bus Routes (T, W, Th, Sat)



# Income & Old Bus Routes (T, W, Th, Sat)



# Income & New Bus Routes (T, W, Th, Sat)

