
Carlisle Bus Service Initiative

2010 CAT Service Study
Implementation

Harrisburg Area Transportation Study
and Capital Area Transit

Intraborough Service

This study was initiated as a part of the implementation of the CAT Service Study conducted by the Harrisburg Area Transportation Study (HATS) in partnership with Capital Area Transit (CAT) and adopted in 2009. The service study identifies possible alternatives to satisfy several transit needs identified. Service connecting Carlisle area residents with employment and services within the borough was identified as a possible alternative and found to be consistent with the needs identified. After the adoption of the service study, HATS and CAT selected the Carlisle service recommendation to move forward into further analysis to screen routing and service alternatives and estimate costs.

Existing Conditions

Carlisle is a historic borough with a traditional downtown and neighborhood design. Tri-County Regional Planning Commission employment estimates show 5,450 total employees in downtown Carlisle, 3,716 non-retail employees and 547 retail employees. Non-retail employees include large employers such as Cumberland County and Dickinson University. Journey to work data from the 2000 U.S. Census shows that Carlisle Borough is the top destination for workers living in most central and western Cumberland County communities. Downtown Carlisle has easily available, free parking for most commuters. It also has pedestrian friendly streets and convenient restaurants and services for daytime workers. The parking can be a disincentive for transit ridership, while the traditional design of the downtown and the mix of uses is an incentive.

Comprehensive Traffic Study of Downtown Carlisle

A study of traffic in downtown Carlisle was published in September of 2008. The study focuses on the following goals:

- Calm traffic and enhance Carlisle's small town feeling
- Reduce accidents and enhance safety
- Promote walking and bicycling
- Reduce air and noise pollution
- Maximize downtown business success
- Improve parking access and safety
- Reduce truck traffic in Downtown Carlisle

The recommendation of the study is a road diet in downtown Carlisle reducing the travel lanes on High and Hanover streets from four lanes to two, along with recommendations for pedestrian and bicycle enhancements. In 2009 Carlisle Borough applied for and received funding from the Pennsylvania Community Transportation Initiative program for implementation. Construction is projected to be completed in 2011. Transit service within the borough is consistent with the goals of the traffic study.

Comparison to small transit systems in Pennsylvania

The service population of Carlisle Borough, including traffic analysis zones in North Middleton and South Middleton Townships, is 34,600 (2000 US Census). Out of the other

systems in Pennsylvania with less than 10 total buses in their fleets, Carlisle’s service area is most similar to Butler, Mt. Carmel, and Venango. The ridership per revenue vehicle hour for each of these systems is slightly below the CAT system number. In 2007 CAT had 16 riders per revenue vehicle hour, while Butler had 13 and Mt. Carmel had 12. Venango came in much lower, with 7. Dubois and Kittanning, with much lower service populations, came in at 6 and 5 riders respectively.

The number of senior passengers as a percentage of total ridership is much higher in these other systems than the CAT system wide percentage. CAT fixed route ridership was about 8% senior passengers. Out of the 3 small systems with comparable population, Venango carried 24% senior passengers, Butler 40%, and Mt. Carmel 89%. The total percentage of residents over 65 in each county does not seem to vary enough to explain the differences in these percentages. Cumberland County falls into the middle range of these counties.

County	Percent of riders over 65
Butler	14%
Cumberland	15%
Northumberland	19%
Venango	16%

Comparative Statistics for Pennsylvania Transit Systems under 10 Vehicles in Total Fleet

Transit System	Service Area Population	Total Fleet	Fixed Routes	Total Passengers	Senior Passengers	Total Ridership per Revenue Vehicle Hour
Butler Transit Authority	33,339	6	6	152,124	59,638	13
Lower Anthracite Transit, (Mt. Carmel)	33,000	3	2	56,710	50,311	12
Venango Bus	36,354	4	3	55,920	13,260	7
DuFAST, (Dubois)	18,378	5	4	57,874	25,369	6
Town and Country Transit (Kittanning)	11,837	6	3	53,645	31,522	5

Residential Density

Much of Carlisle Borough has a residential density over 3,000 people per square mile. Neighborhoods to the north of downtown are over 6,000 and to the south of downtown over 12,000 people per square mile. Residential density within the borough should be sufficient to support transit. The top two origins for workers commuting into Carlisle are North Middleton and South Middleton Townships. In North Middleton Township there is relatively dense residential development along PA-34 in Schlusser. The rest of the township is low density residential development. South Middleton Township has dense residential development along Forge Road leading out of Carlisle south to Boiling Springs. South on PA 34 from Carlisle is the small borough of Mount Holly Springs, an older community with a tradition street design and density.

Congestion

The HATS Congestion Management Process (CMP) identifies the following corridors into Carlisle:

CMP Corridor	Streets	Lowest Peak LOS	CMP Priority
50	PA 34	D	N
29	US 11	C	Y
48	PA 641	C	N
49	PA 641	C	N

Current Transit Service

C and CX – Carlisle Local and Commuter Express

The Carlisle Local Connects Carlisle with Harrisburg via the Carlisle Pike. The route originates at the Carlisle Commons shopping center, where a park and ride is located, and then travels through the borough and provides access to the retail establishments on the Carlisle Pike as well as the Lemoyne Transfer Center and downtown Harrisburg. The Carlisle Commuter Express also originates at the Carlisle Commons park and ride and makes stops in the borough, but uses I-81 to Harrisburg instead of the more congested Carlisle Pike. The express route saves about one quarter of the time it takes the local route to reach the Market Street Transfer Center from the origin at the Carlisle Commons. Both routes have been very successful.

Route C and Cx Ridership

Federal Fiscal Year	Total Average Weekday	Average Weekday per Hour	Total
2009	471	15.93	120,003
2010	462	16.46	117,622

81-Shippensburg/Newville

Route 81 originates in Shippensburg and stops at the Newville park and ride before it arrives at the Carlisle Commons park and ride. From the Carlisle Commons, there are two versions of the route. One version provides express service to Harrisburg; the other provides service to the Mechanicsburg Navy Depot. This route is not timed to allow easy transfer to route C for riders wishing to travel from Shippensburg and Newville into Carlisle.

Route 81 Ridership

Federal Fiscal Year	Total Average Weekday	Average Weekday per Hour	Total
2009	192	14.06	48,900
2010	172	13.43	43,720

Carlisle Service Alternatives

Carlisle Intraborough Transit Feasibility Study, 1984

Two alternatives are proposed. The first alternative consists of two routes. One route would serve the residential area to the north of Carlisle and travel south through the CBD to the Carlisle Commons (formerly MJ Mall). The second route would serve the residential neighborhoods of Carlisle and serves the Carlisle Plaza mall and Dickinson College. There would be transfer opportunity from one route to the other and to the Carlisle to Harrisburg route (Route C). The second alternative is a borough circulator route only, that would serve some of the borough residential neighborhoods, the Carlisle Commons, Carlisle Plaza Mall, and Dickinson College. That study contained a survey of Carlisle residents and cost recovery analysis of each proposal.

CAT Service Study, 2010

The CAT Service Study adopted in 2010 by the Harrisburg Area MPO identifies Carlisle service as recommended new service alternative based on census journey to work data and employment density. The service study bases the recommendation on the large unserved commuter interaction within the borough and in the surrounding residential developments. The pedestrian – friendly design of downtown Carlisle, which will be improved by the implementation of the *Comprehensive Traffic Study of Downtown Carlisle* (September 2008) should promote transit use. The Service Study recommends exploration of commuter routes into North Middleton Township, South Middleton Township, and Mount Holly Springs and of a circular route serving the larger shopping centers. For this implementation plan, two of the route concepts in particular were considered for further development, the Carlisle Circulator [see map: Service Study Circulator] and the North Middleton Township commuter route [see map: Service Study Commuter].

Carlisle Bus Service Initiative Task Force

Representatives of Cumberland County, Capital Area Transit, and Tri-County Regional Planning Commission met as a part of the work program for this initiative to identify ridership generators in and around Carlisle, review the past planning work done related to intraborough service, conduct a field view of possible service areas, and propose a route or routes for review by CAT staff. The task force identified several potential transit trip generators in the Carlisle area. The generators identified by the task force were:

Carlisle Barracks

Keystone Arms

County Home

Carlisle Commons

Carlisle Plaza

Giant

Wal-Mart

Walnut Town Center

Carlisle Regional Medical Center

Dickinson College

Downtown Business District

Northwestern Carlisle Residential Neighborhood

The task force recommended that the Carlisle routes connect with the existing CAT routes and provide an opportunity for transfers. The logical connection is at the existing CAT park and ride in the Wal-Mart parking lot. It is served by Route 81 coming from Shippensburg and Newville and by Route C and C commuter express. The connection would allow transfers from Shippensburg and Newville to routes connecting with Carlisle employment, and transfers from the Carlisle routes to express routes to Harrisburg employment. [See map: Task Force Circulator]

The proposed circulator route was evaluated by CAT staff, and found to have several flaws. The route was calculated to need 75 minutes to complete the loop once stops and a recovery time were factored in. Running buses in the opposite direction around the loop would reduce some of the travel time, but route planners were concerned that the trips would still be too long to compete with other modes of transportation. CAT staff evaluation also suggested that several generators in the borough could be better served than this route proposes, especially the downtown area and Courthouse complex.

Recommended Routing

CAT staff made route recommendations based on the generators identified by the task force and their own separate field view and evaluation of potential transit in the borough. The recommendation was four linear route segments originating at the existing CAT park and rides and service the different sections of town. The segments can be paired and run by a single bus consecutively, providing cross-town connections without the need to transfer. [See map: Initiative Recommended]

Cost to Implement Recommended Routes

Estimated operating and capital start-up cost for the recommended routes were developed by CAT staff. The estimates were done for two different scenarios: one that would provide full service on the weekdays and Saturday service, and one that would provide limited three day a week service. The first scenario is recommended. Fare box revenue has not been projected. For a new start-up of this type revenue would be projected to be relatively insignificant.

Operating Cost

Scenario 1: Full Service

Base service:

7:30 am to 6:00 pm Weekdays

10:00 am to 11:00 pm Saturdays

Total: \$677,300

ADD Extended service to 9:00 pm on Tuesdays and Thursdays - \$55,100

Total: \$732,400

Scenario 2: Limited Service

Base Service

8:00 am to 6:00 pm. 3-day a week service, either (M-W-F) or (TU-TH-SAT)

Total: \$312,100

Capital Cost

To operate service on one hour headways, two buses must be purchased. Current costs for new equipment are:

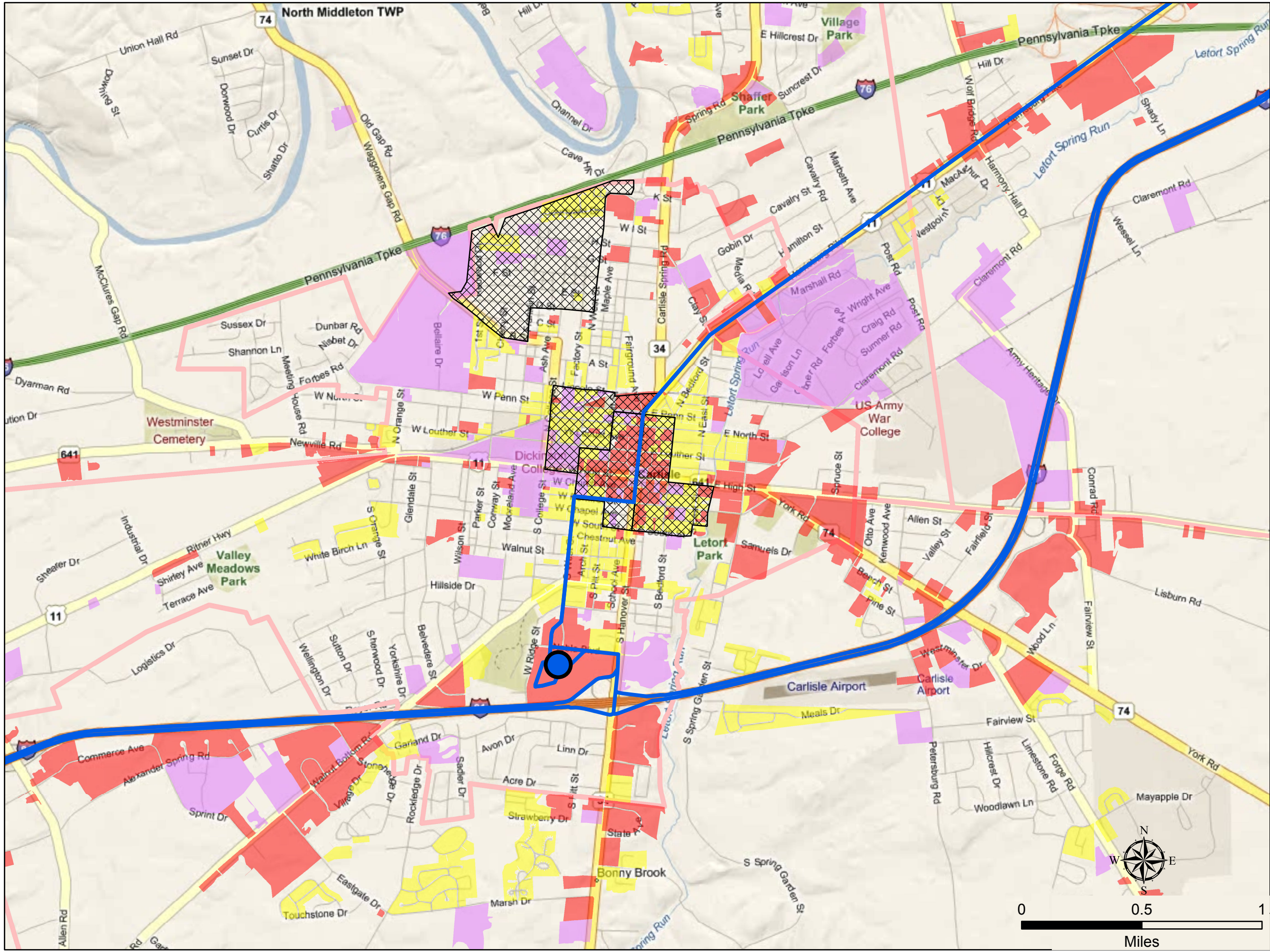
30' Diesel Bus @ \$339,000 x 2 = \$678,000





35' Diesel Bus @ \$348,000 x 2 = \$696,000




30' Hybrid Diesel Electric Bus @ \$536,000 x 2 = \$1,072,000

35' Hybrid Diesel Electric Bus @ \$545,000 x 2 = \$1,090,000

Carlisle Borough
Land Use and
Demographic Context
Cumberland PA



-  Poverty Households
-  Dense Residential
-  Commercial and services
-  Institutional

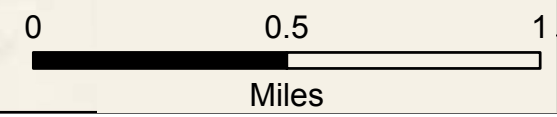
-  CAT Park and Ride
-  CAT Existing Routes
-  Municipal Boundary



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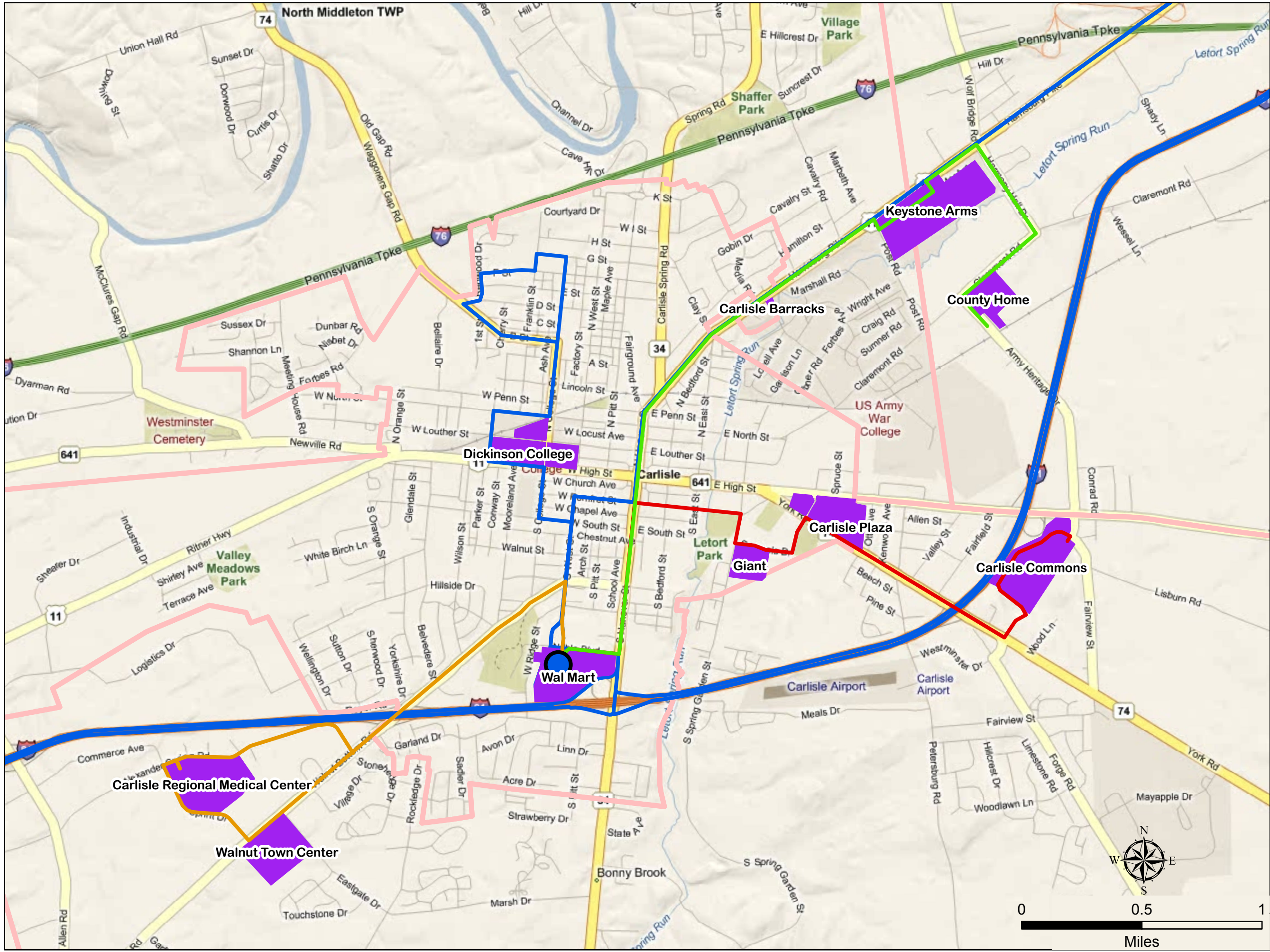
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**Carlisle Borough
Implementation Plan
Recommendation
Cumberland PA**



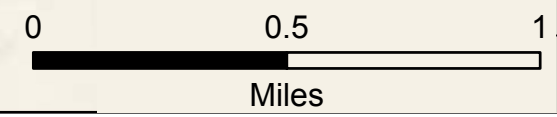
- Dickinson College
- Carlisle Mall
- Keystone Arms
- Medical Center

- CAT Park and Ride
- CAT Existing Routes
- Transit Generators
- Municipal Boundary

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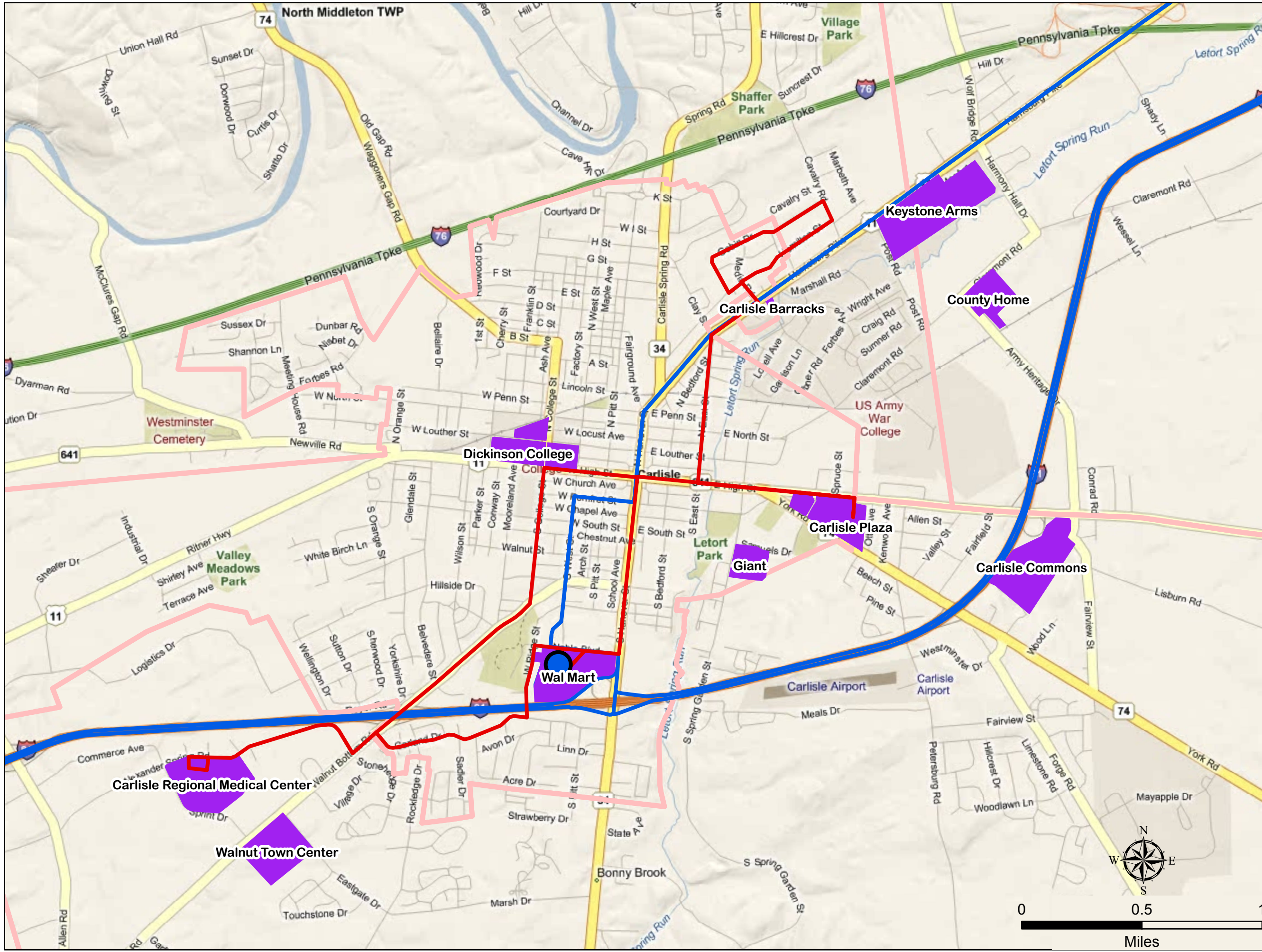
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**Carlisle Borough
Service Study Circulator
Cumberland PA**



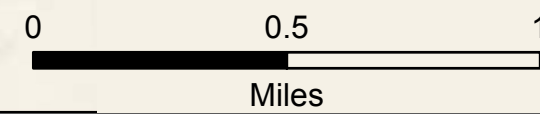
Proposed Circulator Route

-  CAT Park and Ride
-  CAT Existing Routes
-  Transit Generators
-  Municipal Boundary



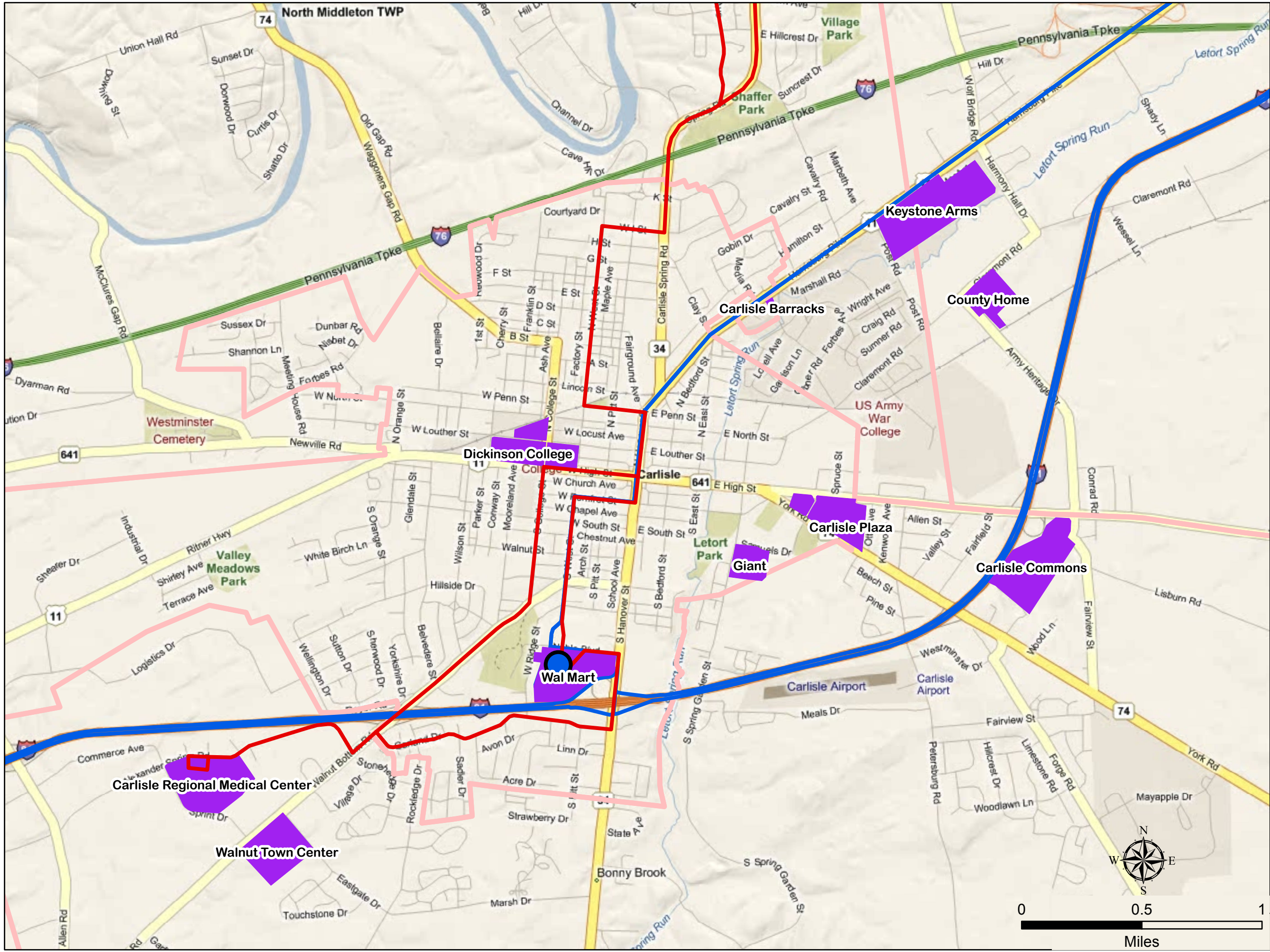
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**Carlisle Borough
Service Study Commuter
Cumberland PA**



Proposed Commuter Route

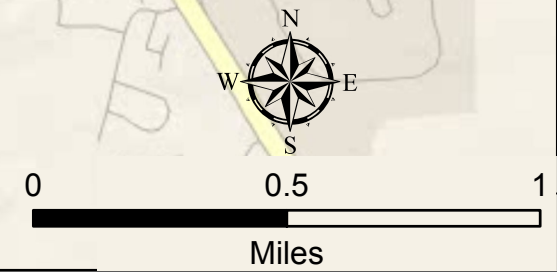
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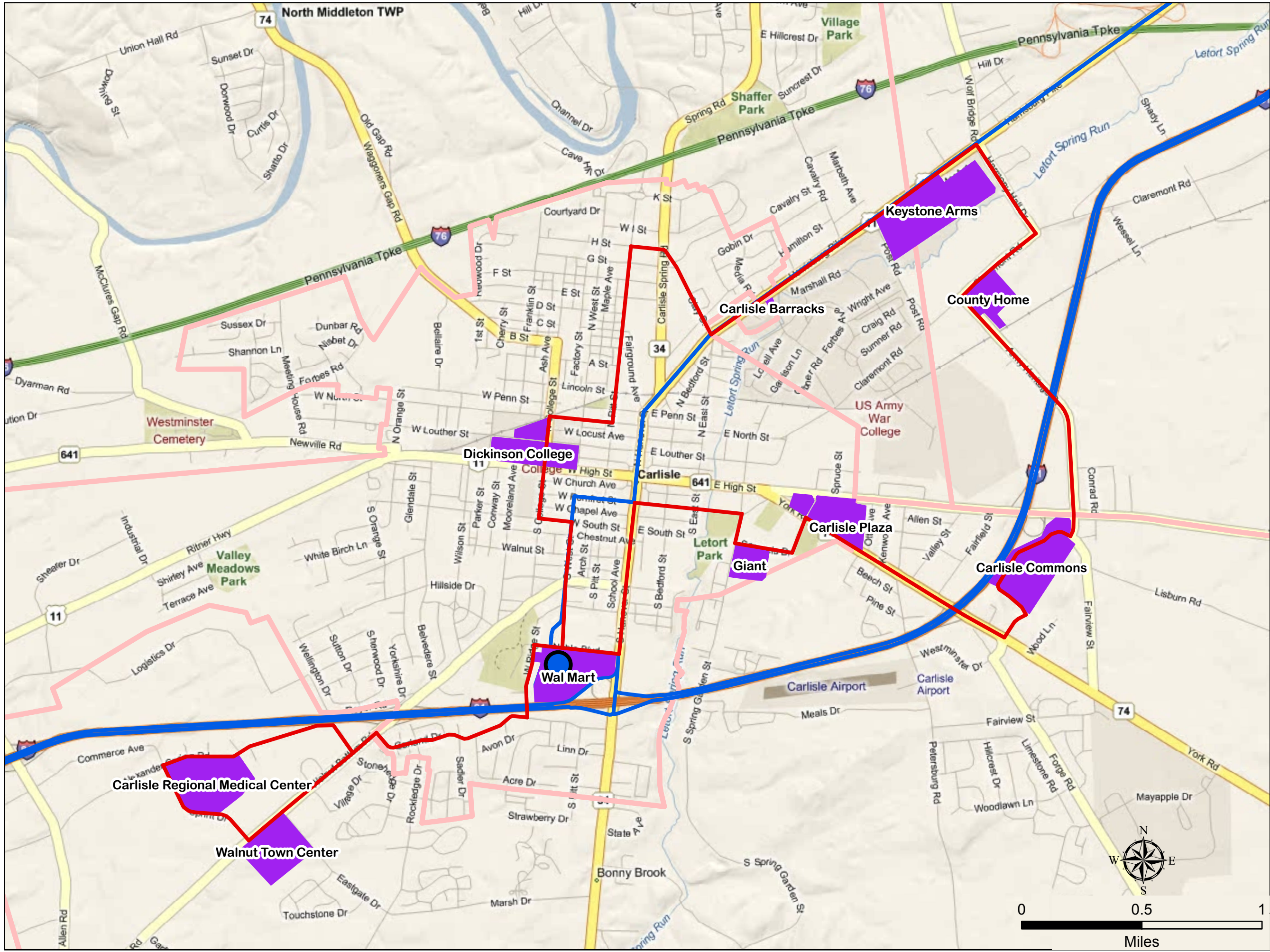
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**Carlisle Borough
Task Force Circulator
Cumberland PA**



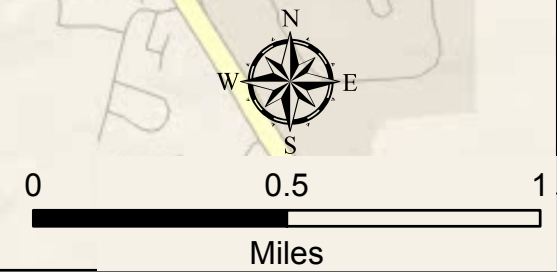
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