

Existing Conditions

The Metacom Avenue corridor in Warren clearly has distinct characteristics, constraints, and opportunities contributory to the corridor's Character, Framework, Connections, and Vibrancy.

- **Character** – the opportunity for a pedestrian-oriented environment has not been fully realized in the compact, mixed-use village area due to the prevalence of the single occupancy vehicle, blank/solid walls of commercial establishments detracting from the streetscape, and the absence of people on the street.
- **Framework** – the opposing street grid extending off Metacom Avenue is not aligned at many intersections, reducing traffic flow. The one-way traffic pattern of the northern reach not only isolates residential neighborhoods, it provokes a 'thoroughfare' mentality, reducing safety.
- **Connections** – sidewalks and building entrances fade into expansive parking areas, while utility poles and signage obstruct pedestrians.
- **Vibrancy** – although the corridor is recognized for its centrality to housing, shopping, school routes and services, it lacks the range of clustered uses to generate activity throughout the day and into the evening.

The Project Team, Steering Committee and stakeholders have worked together to identify strengths and vulnerabilities in the Metacom Avenue corridor. By conducting a visual analysis, researching current land use and zoning, identifying development constraints, assessing environmental conditions, and documenting infrastructure/transportation issues, an understanding of existing conditions has been developed which has helped define tools to plan for the future of the corridor to improve its marketability, appearance, image, traffic flow and safety in subsequent sections of this study.

The study area for this project includes Arlington Avenue between Kickemuit Road and Metacom Avenue (Route 136), and Metacom Avenue (Route 136) between Kickemuit Road and the Bristol Town Line. For purposes of this study and in keeping with the Town's methodology of segmenting the Town into Planning Areas (also in kind with the draft updated Comprehensive Plan) the project area has been segmented into four distinct sections for the Infrastructure/Environment Analysis, Existing Zoning Analysis, Areas Susceptible to Change Analysis, and Existing Traffic Analysis:

1. The North Warren Planning Area, which encompasses the area northeast of Child Street bordered by Metacom Avenue (Route 136), Kickemuit Road (Route 136), and the Kickemuit River.



2. The Town Core Planning Area, which encompasses the area from Metacom Avenue (Route 136) west to approximately Everett Street, between Kickemuit Road (Route 136) and Franklin Street/Libby Lane.
3. The Child Street West Planning Area, which covers the area from Child Street south to Patterson Avenue, and from the Kickemuit River west to approximately Greenlawn Avenue.
4. The South Warren – Metacom Planning Area, which is bordered by Vernon Street and Patterson Avenue to the north, the Bristol Town Line to the south, approximately Terrace Avenue to the east and Barden Lane to the west.

Due to the methodology with which the Visual Analysis was completed (windshield survey), the approach of utilizing Planning Areas did not necessarily fit for this analysis. The project area has been described as three quite different areas defined by development patterns, land use, age and location:

1. Northern end: Child Street intersection area
2. Transition area: from Metacom entrance at Arlington Ave. to Vernon St.
3. Southern end: Metacom commercial district (Vernon Street to the Bristol line)

For the Impervious Cover Analysis, the project area has been delineated by Narragansett Bay Watershed sub-basins, utilizing the Total Impervious Area (TIA) - Direct Measurement methodology for estimation:

1. Palmer River Sub-basin
2. Kickemuit River Sub-basin
3. Warren River Sub-basin

Visual Analysis

Viewshed

The first step in the analysis was to define the limits of the viewshed along the Metacom Avenue corridor using a windshield survey to map the extent of the view from the roadway including the view from both north and south travel lanes. The resulting viewshed varies from the narrow view corridors in the Child Street intersection neighborhood to a more open corridor in the southern commercial district. The outline is jagged edged with distinct ‘fingers’ extending down side streets or where there are larger buildings and open areas around them.

Visual Incidents

There are few distinctive focal points or distinctive visual incidents along Metacom Avenue. Incidents that one would note as having special interest might include the Parker Mill chimney, the distant east view to the Brenton Point Power Plant stacks and certainly the Wightman Farm pasture.



Parker Mill chimney from Rosa Boulevard.

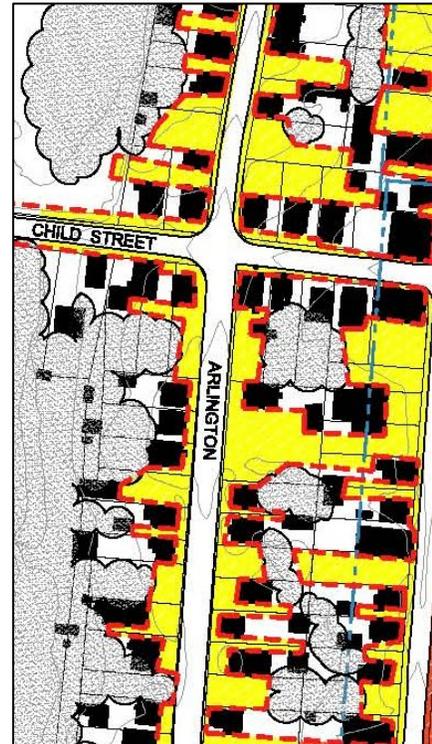


Landscape Character

Landscape character was principally identified by landscape scale defined by the buildings and spaces around them. The principal categories were small and medium scale with a third category for distinctly different or contrasting buildings and their open parking lots. In addition, the remnant agricultural fields although of medium or large scale are given a separate category of their own.

Small Scale

Small scale character is typical of areas with buildings with small foot prints and narrow spaces between them with existing land use usually residential or small business. The Child Street intersection area is consistently small scale but there are also localized small scale sections in the other areas.



Medium Scale

Medium scale landscape character is typical of the commercial district where buildings and the related open areas are larger than those in the residential areas. These areas have a vehicular orientation, conspicuous parking and commercial signage that are also important to the character.



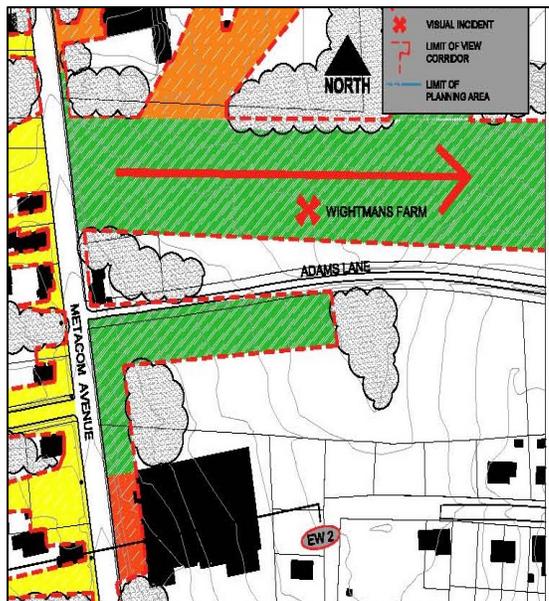
Contrasting Scale

Most of Metacom Avenue is readily identifiable as small or medium scale but there are two areas with a distinctly different appearance. The first is the Parker Mill as a large building with large parking lot. The other is the Ocean State Job Lot Plaza with its huge open parking lot and long building, which though off Metacom Avenue, has a strong presence for northbound traffic.



Open Space/Agricultural

The open fields (and cows) are an intriguing and picturesque remnant of the areas agricultural past. The two long parallel fields do not have wide Metacom Avenue frontage but when foliage is thin they merge as a significant open view.



Analysis

Based on the findings above, the project area can be described as three quite different areas defined by development patterns, land use, age and location:

Northern end (Child Street intersection area)

- The northern end of the project area is an area of dense development of residential and small shops built from the mid 1800's to the mid 1900's. It has a relatively consistent small village-like character with the Parker Mill at its edge but no civic or clear commercial center. The intrusion of the traffic congestion of the one-way circulator has become a defining feature of the area but surprisingly seems not to have broken the threads that weave the neighborhood together.

Transition area (from Metacom Avenue entrance at Arlington Ave. to Vernon St.)

- This is not an area in transition (as in the process of change) but instead, an area of mixed uses, ages and building types that is more suburban than the Child Street neighborhood to the north and without the concentrated business development of the southern Metacom Avenue commercial strip. Within a short distance there is housing, a church, commercial and manufacturing structures, as well as noticeable topography and attractive old pastures.

Southern end (Metacom Avenue commercial district - Vernon Street to the Bristol line)

- The southern Metacom Avenue commercial district is almost "built-out" as a strip commercial development including both known franchises and local businesses. The businesses' market orientation is the vehicular through traffic with little or no relationship to adjacent residential neighborhoods to the east or west. The broad corridor and heavy traffic are a barrier to neighborhood and pedestrian activity. The typical image is demonstrated by the west side where (with the notable exception of the Ocean State Job Lot plaza) lot size, zoning, and age of construction have engendered a certain consistency with the similarity in setback and size of single story buildings, regular rhythm of curb cuts and colorful business signs of about the same size, height and street relationship all reinforced by the straight highway alignment and line of utility poles and wires.





NORTHERN ENTRANCE TO CHILD STREET NEIGHBORHOOD THIS AREA IS AN IMPORTANT GATEWAY WITH AN UNDISTINGUISHED APPEARANCE.



CHILD STREET INTERSECTION DENSE RESIDENTIAL AND SMALL BUSINESS DEVELOPMENT ARE DOMINATED BY INTENSIVE TRAFFIC CONGESTION ON NARROW STREETS.



NARROW SIDEWALKS OFTEN CLUTTERED, THE NARROW SIDEWALKS MAKE CONGESTED STREETS EVEN MORE DIFFICULT FOR PEDESTRIANS.



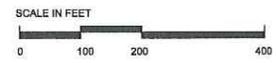
METACOM AVENUE ENTRANCE FROM ARLINGTON THIS AREA MARKS A DEFINITE CHANGE IN LANDSCAPE CHARACTER.



PARKER MILL BUILDING AND PARKING LOT THE LANDSCAPE AND ARCHITECTURAL CHARACTER ARE IN CONTRAST WITH THE ADJACENT SMALL SCALE NEIGHBORHOOD.

METACOM AVENUE - NORTH

**VISUAL ANALYSIS
WARREN, RHODE ISLAND**



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FIG. 1.1.1

NOVEMBER 2010



LANDSCAPE CHARACTER

- OPEN SPACE/ AGRICULTURAL
- SMALL SCALE CHARACTER
- MEDIUM SCALE CHARACTER
- CONTRASTING SCALE CHARACTER

LEGEND

- DOMINANT COMMERCIAL SIGN
- LONG DISTANCE VIEW
- VISUAL INCIDENT
- LIMIT OF VIEW CORRIDOR
- LIMIT OF PLANNING AREA



LIBBY LANE INTERSECTION THIS AREA IS DOMINATED BY AN OPEN LANDSCAPE OF BROAD STREET AND PARKING LOTS.



WIGHTMAN'S FARM AN INTRIGUING REMNANT OF THE AGRICULTURAL PAST, THIS AREA IS IN STRONG VISUAL CONTRAST TO THE CURRENT SURROUNDING DEVELOPMENT.



TRANSITION AREA RESIDENTIAL SECTIONS OF THIS PART OF METACOM AVENUE HAVE A SUBURBAN APPEARANCE.



TRANSITION AREA THIS AREA IS DEFINED BY THE DIVERSITY OF LAND USE AND BUILDING TYPE.



SOUTHBOUND AT JOB LOT PLAZA WHILE THE LARGE JOB LOT ENTRANCE AND BUILDING ARE VISUALLY DOMINANT FROM THE NORTHBOUND LANES, THE SOUTHBOUND VIEW IS BLOCKED BY TOPOGRAPHY AND HEDGES.

TRANSITION AREA

COMMERCIAL DISTRICT

METACOM AVENUE -CENTRAL

**VISUAL ANALYSIS
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FIG. 1.1.2



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METACOM COMMERCIAL DISTRICT A BROAD PAVED STREET, MANY WIDE CURB OPENINGS AND FRONT PARKING LOTS DOMINATE THE COMMERCIAL DISTRICT.



METACOM COMMERCIAL DISTRICT A WIDE VISUAL CORRIDOR IS DEFINED BY THE BUILDING SETBACKS.



METACOM COMMERCIAL DISTRICT TYPICAL LAYOUT AND SETBACK FOR COMMERCIAL BUSINESS AND PARKING.



METACOM COMMERCIAL DISTRICT COMMERCIAL SIGNS, TRAFFIC SIGNALS, UTILITY POLES AND WIRES ARE PARTICULARLY INTRUSIVE IN THE NORTHBOUND VIEW.



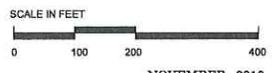
ENTERING WARREN FROM BRISTOL THE SOUTH GATEWAY ENTERING WARREN FROM BRISTOL HAS A SUBURBAN LOOK.

METACOM AVENUE- SOUTH

VISUAL ANALYSIS

WARREN, RHODE ISLAND

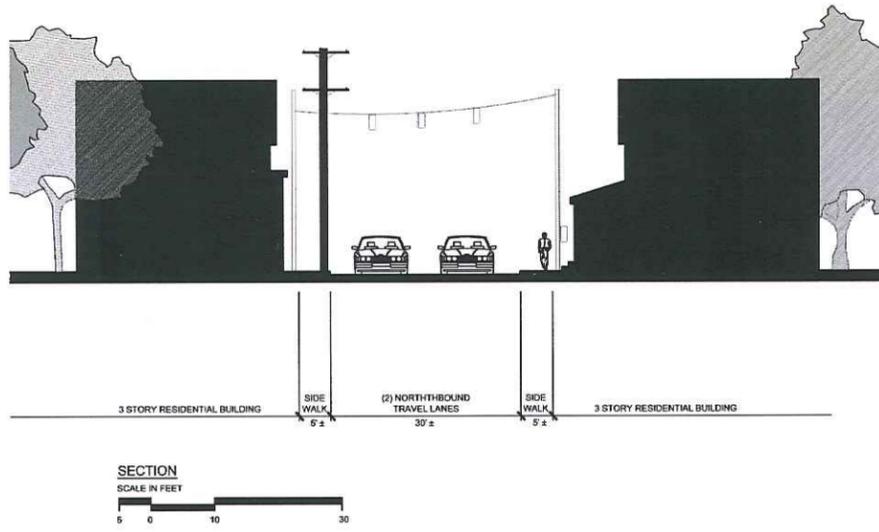
FIG. 1.1.3



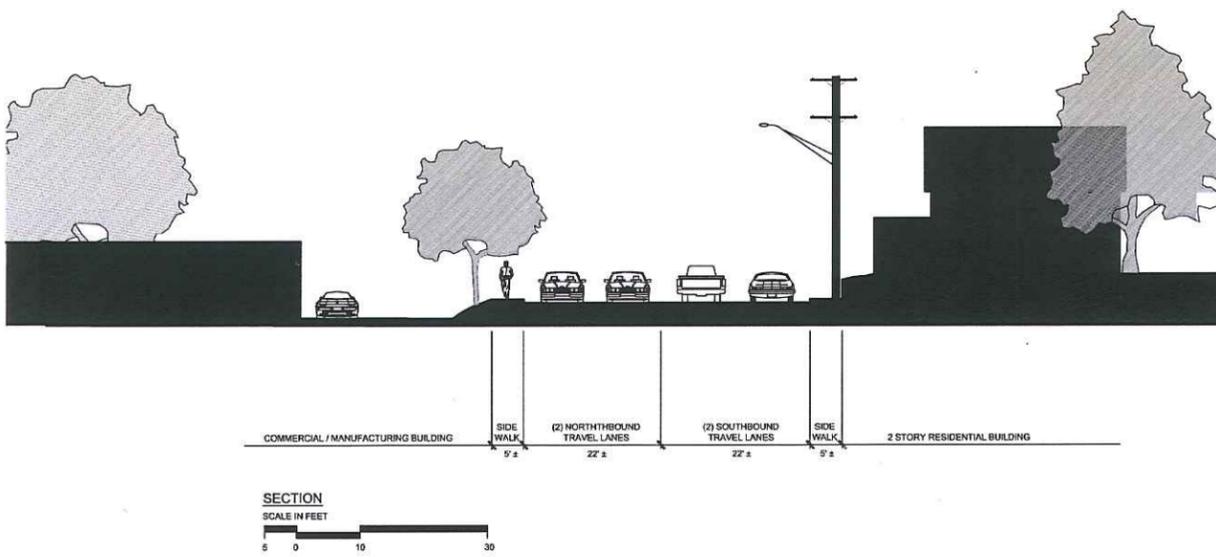
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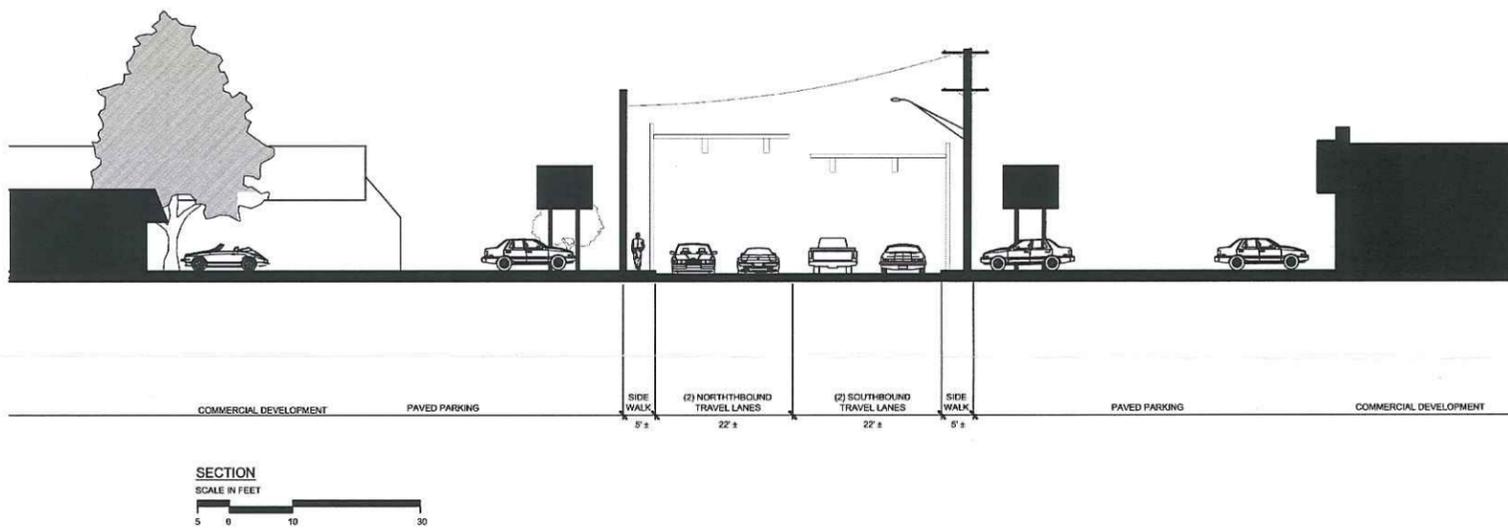
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**CHILD STREET INTERSECTION AREA
SECTION EW 1**



**TRANSITION AREA
SECTION EW 2**



**COMMERCIAL DISTRICT
EW 3**

**VISUAL ANALYSIS
WARREN, RHODE ISLAND**

Infrastructure/Environment Analysis

A comprehensive understanding of the existing infrastructure supporting current multi-modal movement along the corridor, and the environment which established the context in which it occurs, is essential in testing alternatives for improvements. The Metacom Avenue corridor (and area within a quarter mile radius of the corridor) was reviewed based on the following items:

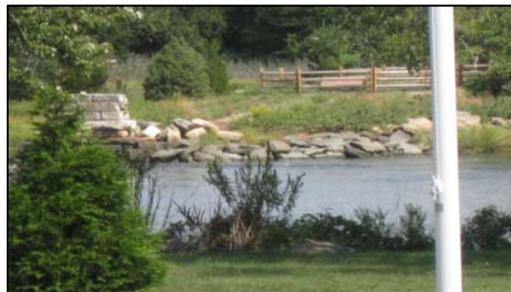
- Pedestrian links to the corridor from the surrounding neighborhoods
- Bicycle links to the corridor from the East Bay Bike Path and Warren Bike Path
- Streetscape elements including lighting, street trees, pavement surfaces, ADA accessibility, bus shelters and signage
- Existing parking (on-street, public and shared)
- Existing activity centers/development nodes – civic, institutional and commercial sites generating multi-generational users along the corridor

North Warren Planning Area

- Child Street/Arlington Avenue intersections with Metacom Avenue have new concrete sidewalks with pedestrian crosswalks/signals and ADA access. Bituminous sidewalks exist in other areas, although in various states of disrepair in many locations.
- The Warren Bike Path is accessible via Child Street east.
- Amenities include utility pole lighting along the north side of Child Street. RIPTA Route #60 traverses Metacom Avenue north, towards Kickemuit Road with 1 identifiable bus stop.
- On-street parking exists on the east side of Metacom Avenue, north of the Child Street intersection (no signage).
- Child Street/Metacom Avenue intersection is considered an activity node, as well as the businesses north of the Child Street intersection. The Hugh Cole Elementary School and Kickemuit Middle School are accessible via Child Street east.



North Warren businesses.



Warren bike path connection, east of the Kickemuit.

Town Core Planning Area

- Bituminous sidewalks exist throughout the area, except east side of Metacom Avenue in front of Parker Mill (concrete), the west side of Metacom in front of mill parking (worn desire lines), and no sidewalks on Rosa Boulevard. Through-travel obstructions exist along most of the sidewalks in the form of signage and utility poles (permanent obstructions) and trash receptacles and recycling bins (temporary obstructions). ADA access is very limited throughout the area. Of particular note is

the sidewalk along the south side of Kickemuit Road heading north, which dead-ends into a guard rail and provides no pedestrian refuge. Perella's Restaurant provides two sets of stairs from their parking areas along Arlington Avenue to their establishment on Metacom Avenue. Although informal in nature, they provide foot-traffic access points between Arlington Street and Metacom Avenue. Most crosswalks are in need of new striping.

- The East Bay Bike Path is accessible via Franklin Street to the west. Franklin Street is a narrow road with no sidewalks.
- Amenities include utility pole lighting along the east side of Metacom Avenue and west side of Arlington Avenue. RIPTA Route #60 traverses Arlington Avenue south, towards Metacom Avenue with 2 identifiable bus stops.
- On-street parking exists on the west side of Arlington Avenue from Child Street south to the entrance to Metacom Avenue.
- Franklin Street/Libby Lane intersection with Metacom Avenue is considered an activity node due to the proximity to the Warren Housing Authority development on Libby Lane.



Worn desire lines west of Parker Mill.



Thoroughfare mentality on Arlington St.



Limited access from commercial use to accessory parking.

Child Street West Planning Area

- Bituminous sidewalks exist throughout the Metacom Avenue corridor, without continuation into the residential neighborhoods directly off Metacom Avenue. Through-travel obstructions exist sporadically along most of the sidewalks in the form of signage, utility poles and mailboxes. The Franklin Street/Libby Lane intersection with Metacom Avenue includes pedestrian crosswalks/signals and ADA access. The Vernon Street/Patterson Avenue intersections with Metacom Avenue includes pedestrian crosswalks, but no signals. Most crosswalks are in need of new striping. ADA access is very limited throughout the area. A set of pedestrian stairs exists from the northeast corner of the parking area at the Ocean State Job Lot Plaza, down to Vernon Street.
- The East Bay Bike Path is accessible via Franklin Street to the west. Franklin Street is a narrow road with no sidewalks. An existing Narragansett Electric easement south of the mill and parallel to Libby Lane has potential as a Warren Bike Path



connection (pending construction of a new rail bridge). A sewer easement along the Kickemuit River also has potential as a pedestrian trail/link.

- Amenities include utility pole lighting along the east side of Metacom Avenue from Child Street to St. Thomas the Apostle Church, then transitions to the west side of Metacom Avenue. RIPTA Route #60 traverses Metacom Avenue both northbound and southbound, with the only RIPTA bus shelter located at the intersection of Libby Lane and Metacom Avenue. Several CRMC Public Access Points are located east of Metacom Avenue along the Kickemuit River at the terminus of Libby Lane, Parker Avenue, and Patterson Avenue.
- No on-street parking exists along the Metacom Avenue corridor.



Solitary RIPTA bus shelter within project limits.

South Warren – Metacom Planning Area

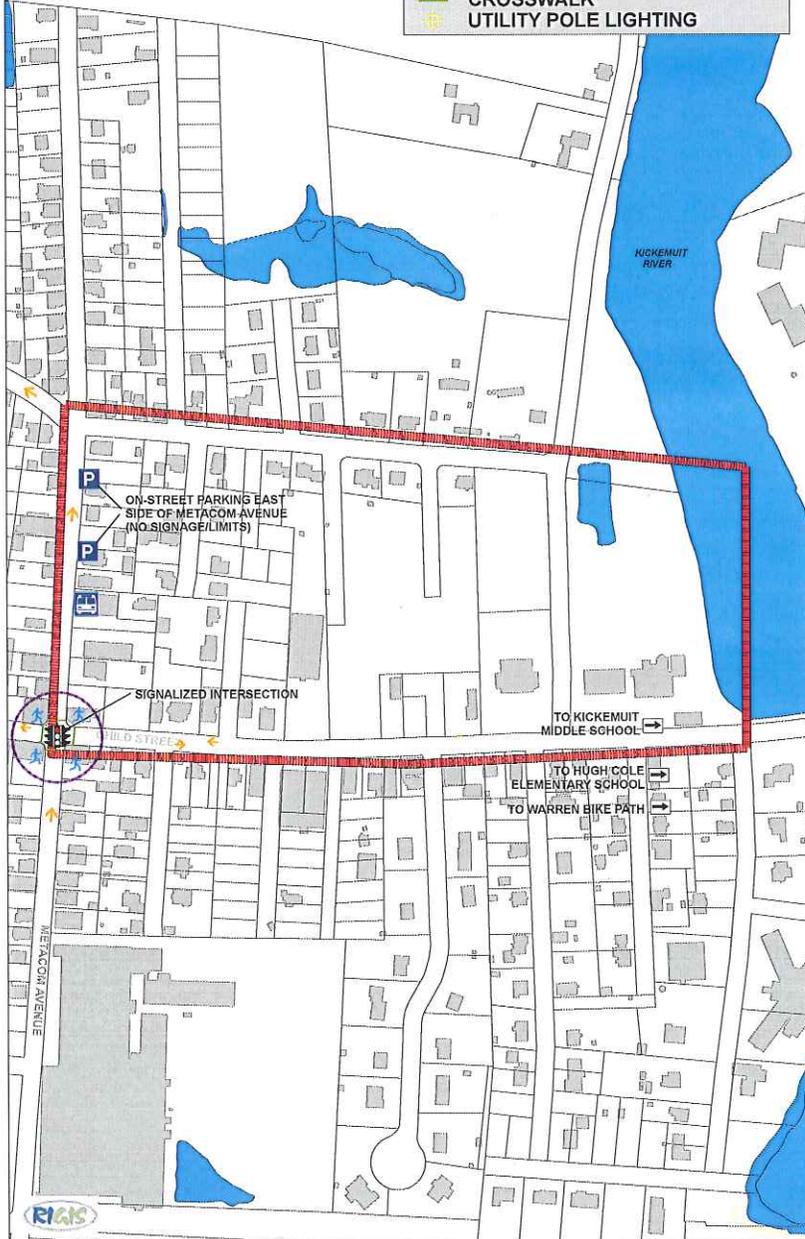
- Bituminous sidewalks exist throughout the Metacom Avenue corridor, without continuation into the residential neighborhoods and/or commercial establishments directly off Metacom Avenue. Through-travel obstructions exist sporadically along most of the sidewalks in the form of signage, utility poles and mailboxes. There are pedestrian crosswalks/signals and ADA access at the Seymour Street/Laurel Lane intersections with Metacom Avenue. Limited ADA access throughout the area.
- Amenities include utility pole lighting along the west side of Metacom Avenue. RIPTA Route #60 traverses Metacom Avenue both northbound and southbound. Several CRMC Public Access Points are located east of Metacom Avenue along the Kickemuit River at the terminus of Clark Road and Harris Avenue. Perhaps the only street tree that exists is along the east side of Metacom Avenue in the Homestead Avenue area.
- No on-street parking exists along the Metacom Avenue corridor.
- The commercial area between Vernon Street and Harris Street is considered the primary activity node within the project area.



Signal pole obstructs ADA access.



LEGEND	
	SIGNALIZED INTERSECTION
	ACTIVITY NODE
	ON-STREET PARKING
	RIPTA BUS STOP (NO SHELTER)
	SIDEWALKS
	PEDESTRIAN SIGNAL
	CROSSWALK
	UTILITY POLE LIGHTING



LAST-MINUTE DIRECTIONAL SIGNAGE AT METACOM/KICKEMUIT INTERSECTION.



WIDE EXPANSE OF PAVEMENT DETRACTS FROM PEDESTRIAN SENSE OF SAFETY / SECURITY.



COMMERCIAL ESTABLISHMENTS ALONG METACOM, BOTH SIDES.



OBSTRUCTED PEDESTRIAN PATH METACOM WEST SIDE.



TEMPORARY OBSTRUCTED PEDESTRIAN PATH METACOM WEST SIDE.

NORTH WARREN PLANNING AREA

INFRASTRUCTURE / ENVIRONMENT ANALYSIS

WARREN, RHODE ISLAND

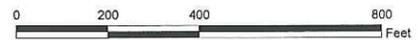
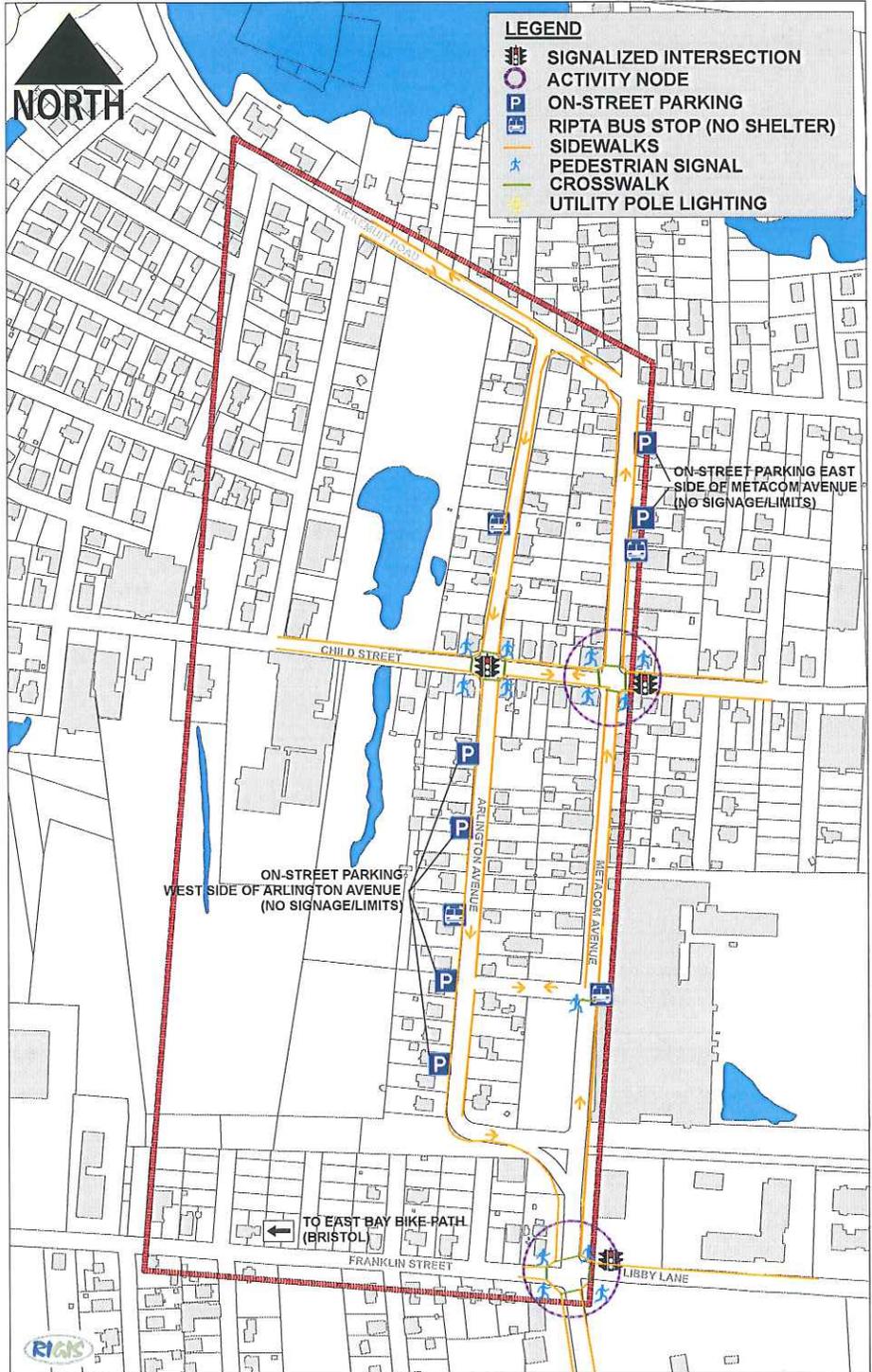
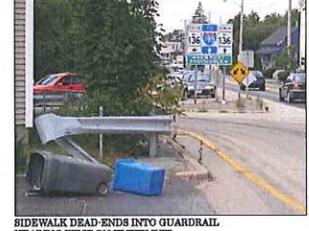


FIGURE 1.1.5



WAYFINDING SIGNAGE CONFUSING AND IN A POOR LOCATION.



SIDEWALK DEAD-ENDS INTO GUARDRAIL HEADING WEST ON KICKEMUTT.



SIDEWALK TRAPS USERS AT BEND TO KICKEMUTT, FROM NORTH ON ARLINGTON AVE.



INTERNAL PEDESTRIAN CONNECTIONS THROUGH PARELLA'S RESTAURANT PARKING.



TRASH AND RECYCLING RECEPTAGLES OBSTRUCT THROUGH PEDESTRIAN TRAVEL.



SIGNAGE AND UTILITY POLES OBSTRUCT THROUGH PEDESTRIAN TRAVEL.

TOWN CORE PLANNING AREA

INFRASTRUCTURE / ENVIRONMENT ANALYSIS

WARREN, RHODE ISLAND



FIGURE 1.1.6



LEGEND

- SIGNALIZED INTERSECTION
- ACTIVITY NODE
- ON-STREET PARKING
- RIPSA BUS STOP (NO SHELTER)
- SIDEWALKS
- PEDESTRIAN SIGNAL
- CROSSWALK
- UTILITY POLE LIGHTING

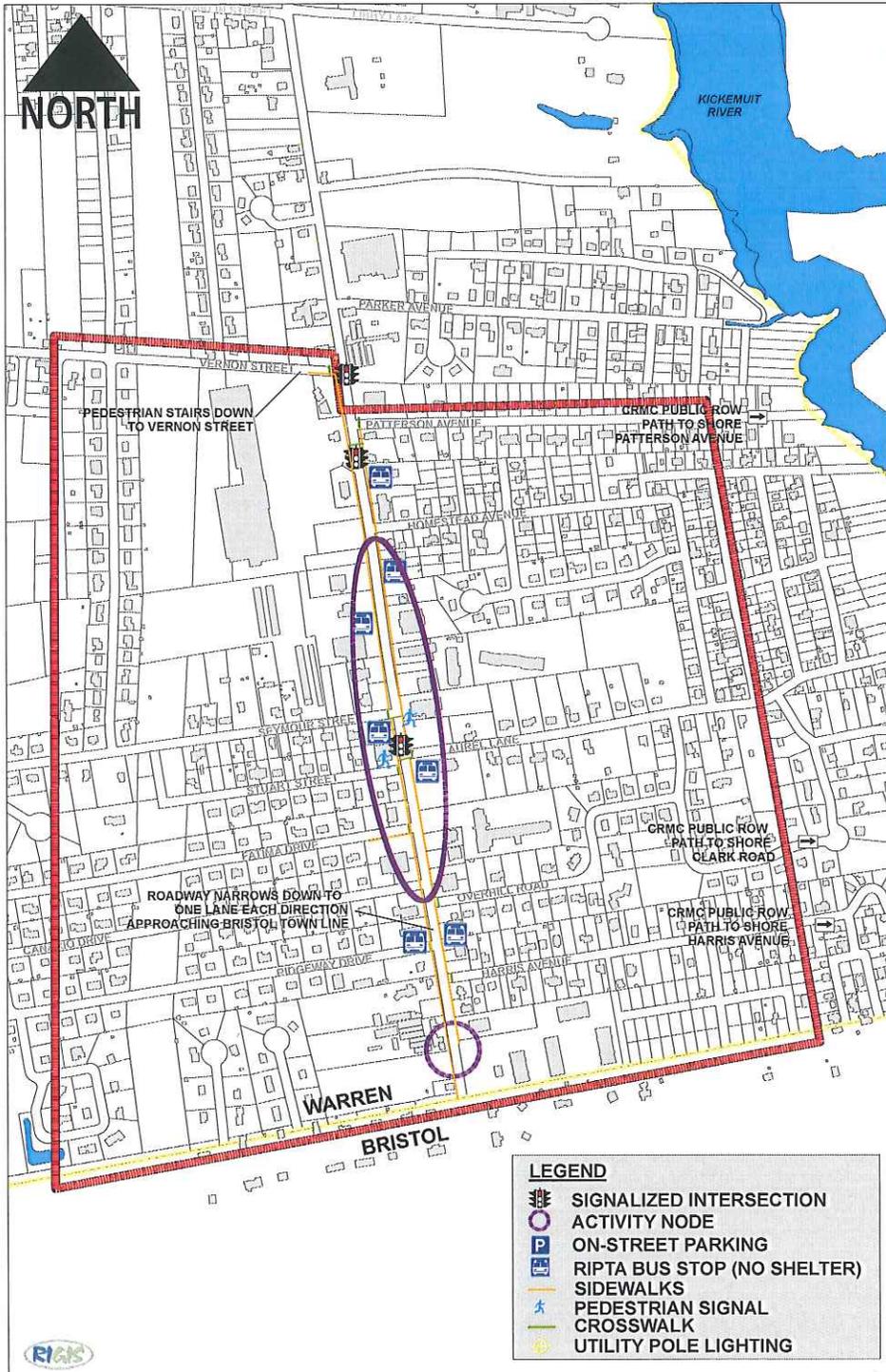


CHILD STREET WEST PLANNING AREA

**INFRASTRUCTURE / ENVIRONMENT ANALYSIS
WARREN, RHODE ISLAND**



FIGURE 1.1.7



SIDEWALKS ARE OBSTRUCTED AND END AT THE ENTRANCE TO OCEAN STATE JOB LOT PLAZA.



PAVEMENT EXTENDS TO THE CURB, WITH NO IDENTIFIABLE PEDESTRIAN ZONE



NO BUFFER BETWEEN THE PEDESTRIAN AND VEHICULAR EXPERIENCES.



NO BUFFER BETWEEN THE PEDESTRIAN AND VEHICULAR EXPERIENCES.



LANDSCAPING ENHANCES THE PEDESTRIAN EXPERIENCE.



NONDESCRIPT GATEWAY INTO TOWN.

SOUTH WARREN - METACOM PLANNING AREA

INFRASTRUCTURE / ENVIRONMENT ANALYSIS

WARREN, RHODE ISLAND

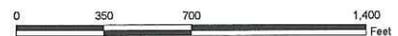


FIGURE 1.1.8

Zoning and Land Use

Zoning to a large extent reflects existing land use when zoning was implemented in Warren in the 1950s, especially in the area north of Libby Lane. In the 1950s the heart of the Metacom corridor was Parker Mill, zoned for Manufacturing, with the densely developed mill village to the north zoned for Village Business for a mixture of retail and high density residential use. Properties along Arlington Avenue were zoned R6 for small lot residential use. In the 1950s much of the land use along Metacom Avenue to the south was dominated by farms and agricultural use with summer cottages along the Kickemuit River.

As the transition from farmland to year-round single-family development occurred in the mid 1950s, the demand for commercial use south of the mill along Metacom Avenue began. The west side of Metacom Avenue was zoned commercial at a depth of 200 feet. A Superior Court case resulted in commercial zoning to a depth of 170 feet on the east side of Metacom.¹ Construction of a gas station at Seymour Street was one of the earliest commercial uses in the southern portion of the corridor. This was followed with construction of the W.T. Grant shopping center (current site of Ocean State Plaza). Subdivision construction continued the transition of agricultural use to post WW-II and later single-family development.

Current zoning is presented in Figure 1.1.9. As indicated, the Metacom Avenue corridor includes the following zoning districts, as described in the Zoning Ordinance:²

- **Village Business.** This district includes the business area off Child Street and Metacom Avenue, where permitted business uses are in character and scale with the mixed-use areas of town, and have less traffic impact and parking demand than more intensive business uses.
- **R6 Residence District.** This district contains areas of the town, which are fully developed at the highest density, an approximate density of one (1) dwelling unit per 6,000 square feet. Arlington Avenue, zoned R6, is developed for 1- and 2-family dwellings.
- **R10 Residence District.** This district contains areas of the town, which are partially or fully developed at an approximate density of one (1) dwelling unit per 10,000 square feet, and areas for which this density is considered appropriate. Neighborhoods south of Parker Mill are zoned R10 although many of the developed lots are significantly smaller than 10,000 square feet.
- **Manufacturing District.** This district includes land in Warren currently used for manufacturing and related uses, and areas which are considered suitable for development of manufacturing uses. The Parker Mill, built in 1880, is located within this zone. Approximately 50 percent of the floor area in this 225,000 square foot building (9-acre lot) is currently occupied.
- **Business.** This district includes all other commercial areas which are not in the Village Business District, and which are suitable for more intensive business uses, including those areas along major thoroughfares where businesses rely on easy vehicular access. Approximately 0.7 miles of frontage on Metacom Avenue is zoned for Business. Uses permitted by right include commercial nursery and

¹ Metacom Avenue Workshop, October 5, 2010.

² Town of Warren Ordinances, Chapter 32 Zoning, Article VII. Zoning Districts and Zoning Map.



greenhouse, professional or business office building, banking, office for a manufacturing use, personal service businesses, mortuary or funeral home, catering, landscaping, and grocery, bakery, drug or similar retail use. A special use permit is required for additional uses (see Section 32-45 of the Town of Warren Ordinances).

Areas Susceptible to Change

Several areas in the Metacom Avenue corridor have been identified as *areas susceptible to change* upon rebound of the economy or within 5 to 10 years. Identification of these areas is one of the steps in developing a proactive planning strategy to improve land use and transportation in the Metacom Avenue corridor. Areas susceptible to change represent a range of opportunities:

- **“Greenfield” development of previously undeveloped tracts.** An example is the 17-acre pasture located adjacent to St. Thomas the Apostle Church, discussed for age 55 and over residential cluster development with preservation of open space. (*Zoned R10*)
- **“Pad-ready” sites.** Several previously developed parcels have been cleared (with site remediation initiated, as required). These include the site of a prior gas station on the corner of Vernon Street and Metacom Avenue and a site proposed for development of a Stop & Shop fueling facility immediately south of the Ocean State Job Lot plaza. (*Zoned Business*)
- **1960s-era redevelopment.** Several of the buildings built to serve highway-oriented businesses have now reached a useful life expectancy of 40 years. Many of these were not built to the standards in the downtown and waterfront where numerous historic buildings are now several hundred years old. The expansive masonry, steel and glass structures typified by the 17-acre Ocean State Plaza as well as some of the smaller strips such as Metacom Plaza may find higher and better use when the economy rebounds if demolished and redeveloped to meet current commercial and/or mixed use demand. Other wood-frame construction including Beastie’s Pet



Supply and various auto-related businesses such as the older gas/service stations are also areas susceptible to change. Many of these are on smaller lots that make redevelopment more challenging. (*Zoned Business*)



- **Redevelopment of florists and greenhouses.** Both the 2-acre Ferrazzano Flowers and 6-acre Pasqua’s greenhouse (on multiple parcels) may represent opportunities for reuse in the future. Although Pasqua’s appears to be a viable business that is important to maintaining a “rural” gateway from Bristol, For Sale signs at Ferrazzano Flowers indicate that this parcel may be especially ripe for redevelopment as the economy changes. (*Zoned Business*)



- **Redevelopment of self-storage.** Regionally, many self-storage businesses may have been built as potentially temporary uses at relatively low cost for redevelopment. A 5.8-acre parcel with minimal frontage on Seymour Avenue is immediately adjacent to Ocean State Joblot. Redevelopment of these parcels totaling over 23-acres may represent a significant mixed use/economic development opportunity for the Town of Warren. Any reuse of these parcels should protect the character of adjacent neighborhoods (*Zoned Business with a 6.2-acre parcel to the rear of Ocean State Plaza zoned R-10, adjacent to the Barden Lane neighborhood*)

- **Child Street village businesses.** Many of the businesses in older buildings at the Metacom Avenue corner (including the fire station) may transition through coming years. Based on small parcel size and lack of off-street parking, it is likely that any changes will be “fine-grained” and not dramatically change the character of the corridor. Any changes in this area should reflect character and scale with the mixed-use areas of town. (*Zoned Village Business*)

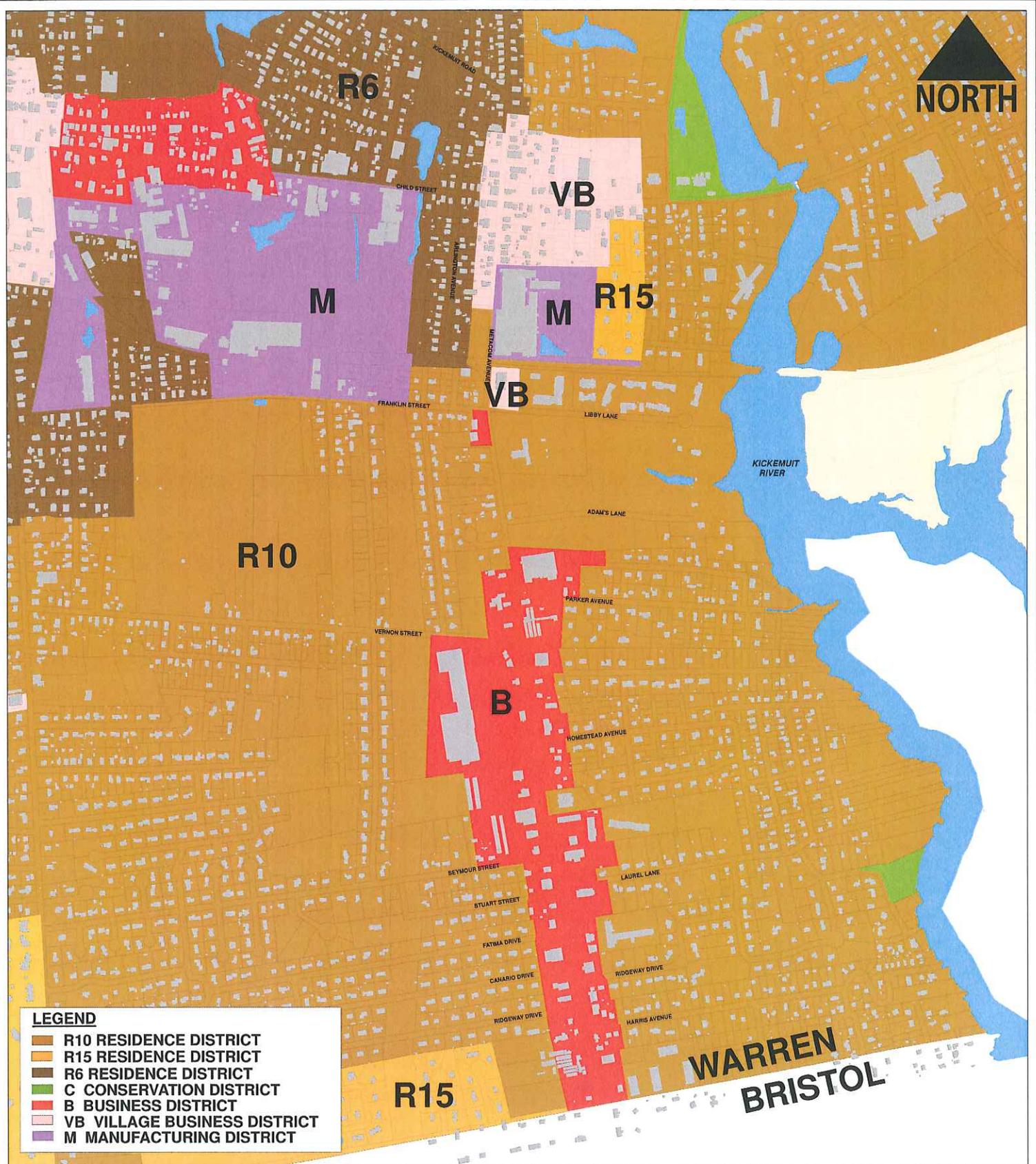


- **Former state office building.** The vacant 7,500-square foot building at the corner of Libby Lane and Metacom Avenue is currently owned by the Housing Authority of the Town of Warren (together with other buildings to the east). According to the zoning ordinance, use of this parcel is “limited to office use only.”³ With municipal ownership, redevelopment would seemingly be exempt from zoning requirements. Future use under Village Business zoning might include mixed use (residential and commercial) or permitted use such as a town-owned recreation facility in addition to professional office use. (*Zoned Village Business*)

Planning Board and/or Zoning Board approval is required for development projects which entail construction, reconstruction, conversion, structural alteration, relocation or enlargement of any structure; any mining, excavation, landfill or land disturbance; any change in use, or alteration or extension of the use, of land.

³ Town of Warren Ordinances, Chapter 32 Zoning, Appendix A. Parcels with Use Restrictions. Plat13C/Lot 142 was restricted to office use on June 10, 1980.



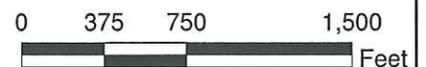


SOURCE:
TOWN OF WARREN GIS (12/2009)

EXISTING ZONING WARREN, RHODE ISLAND



FIG. 1.1.9



Traffic Analysis

Metacom Avenue (Route 136), a state-owned roadway, is classified as an Urban Principal Arterial by the Rhode Island Statewide Planning Program within each of these planning areas. Urban Principal Arterials generally serve the major centers of activity of urbanized areas, the highest traffic volume corridors, and the longest trip desire. They also typically carry a high proportion of the total urban area travel even though they constitute a relatively small percentage of the total roadway network.

Planning Area Descriptions

- **North Warren and Town Core Planning Areas.** The Town Core Planning area encompasses approximately the northern third of the Metacom Avenue (Route 136) corridor, running for a length of approximately 0.4 miles. Between Child Street (Route 103) and Kickemuit Road, Metacom Avenue (Route 136) runs one-way northbound. Just north of Child Street, Metacom Avenue (Route 136) has two 11-foot northbound lanes and a 9-foot parking lane on the east side. Approximately 230 feet north of Child Street (Route 103), the two lanes merge to form one 14-foot travel lane, with striped variable width shoulder on the west side of the roadway and an 8-foot parking lane on the east side of the roadway. At Kickemuit Road, Metacom Avenue (Route 136) operates uncontrolled, with the primary movement being a free left turn onto Kickemuit Road westbound, Route 136. The posted speed limit is 25 miles per hour. Land use within this area is primarily residential with some commercial uses.
- Metacom Avenue (Route 136) meets Child Street (Route 103) at a four-legged signalized intersection. Child Street (Route 103) has recently been resurfaced by the Rhode Island Department of Transportation (RIDOT), with new sidewalks, curbing, and wheelchair ramps installed. Between Child Street (Route 103) and Franklin Street/Libby Lane, Metacom Avenue (Route 136) has two 11-foot northbound travel lanes, with a 2-foot shoulder on the east side of the roadway and a 1-foot shoulder on the west side of the roadway. A signalized intersection is located on Metacom Avenue (Route 136) at Rosa Boulevard, with pedestrian signal heads installed on both sides of the roadway. The posted speed along this section of Metacom Avenue (Route 136) is 25 miles per hour.
- While Metacom Avenue runs one-way northbound between Kickemuit Road and Franklin Street/Libby Lane, Arlington Avenue runs one-way southbound. The combination of these two roadways and their intersection on Kickemuit Road forms an elongated roundabout. Child Street (Route 103) and Rosa Boulevard link Arlington Avenue and Metacom Avenue (Route 136) with two-way traffic eastbound and westbound. Arlington Avenue, Metacom Avenue (Route 136), and Child Street within this area are all classified as Urban Principal Arterials, Franklin Street is classified as an Urban Collector, and Rosa Boulevard and Libby Lane are local unclassified roadways.
- Throughout the Town Core Planning Area, Arlington Avenue has two 11-foot southbound travel lanes. North of Child Street (Route 103), Arlington Avenue has a 2-foot shoulder on both sides of the roadway. South of Child Street (Route 103), Arlington Avenue has a 3-foot shoulder on the east side of the roadway, and a 9-foot



parking area on the west side of the roadway. The geometry of Arlington Avenue near Metacom Avenue (Route 136) forms an S-curve, made up of two curves with radii of approximately 60 feet and 170 feet, respectively. The posted speed limit on Arlington Avenue prior to and through the curves is 30 miles per hour, and land use along the roadway is primarily residential.

- Arlington Avenue intersects Child Street (Route 103) at a four-legged signalized intersection. Traffic signal plans obtained from RIDOT indicate that this signal is interconnected with the signal on Metacom Avenue (Route 136) at Child Street (Route 103) as well as the signals on Metacom Avenue (Route 136) at Franklin Street/Libby Lane and at the Ocean State Plaza Entrance. The intersection of Metacom Avenue (Route 136) with Franklin Street and Libby Lane forms a four-legged signalized intersection.
- **Child Street West Planning Area.** Within the Child Street West Planning Area, approximately 0.34 miles, Metacom Avenue (Route 136) between Franklin Street/Libby Lane and Patterson Avenue has two 11-foot travel lanes in each direction separated by a solid double yellow line. Shoulders are negligible on both the east and west sides of the roadways. The intersection of Metacom Avenue (Route 136) with Vernon Street is a three-legged signalized intersection located just north of the entrance to the Ocean State Plaza. The northbound approach has a leading green phase to allow protected left turns onto Vernon Street, although no designated turn lane is striped on Metacom Avenue (Route 136). Additionally, a crosswalk is marked across Metacom Avenue (Route 136), however, there are no pedestrian push buttons installed. The posted speed limit along this section of Metacom Avenue (Route 136) is 35 miles per hour. Land use along the roadway is a mix of residential, commercial, and institutional.
- **South Warren – Metacom Planning Area.** The South Warren – Metacom Planning area comprises the southern section of the study corridor, from the Metacom Avenue intersection with Vernon Street to the Bristol Town Line, a total length of approximately a half-mile. Through this section, the number of lanes on Metacom Avenue (Route 136) remains unchanged. The roadway has two 11-foot travel lanes in each direction with negligible shoulders on both the east and west sides of the roadway. Signalized intersections are located at the entrance to Ocean State Plaza, at Seymour Street, and at Laurel Lane. All three intersections are three-legged, and Seymour Street and Laurel Lane have pedestrian accommodations installed but Ocean State Plaza does not. The posted speed limit on this section of Metacom Avenue (Route 136) is 35 miles per hour. Land use on Metacom Avenue (Route 136) through this area is primarily commercial, with residential homes located directly east and west of the roadway behind the commercial buildings. The number of curb cuts onto Metacom Avenue (Route 136) through this section is high, as each individual property generally has two or more access points.

Just north of the Bristol Town Line, Metacom Avenue (Route 136) narrows to one 12-foot travel lane in each direction with shoulders between 4 and 6 feet wide. Signage indicating the lane drop is installed in Warren prior to the lane drop. The posted speed limit on Metacom Avenue (Route 136) in Bristol is 40 miles per hour.



Data Collection

Traffic volumes for the Metacom Avenue (Route 136) corridor between Franklin Street and Market Street were obtained from the *Safety Improvements to Route 136* study completed in 2004 by Commonwealth Engineers and Consultants for the RIDOT. The traffic volumes obtained from this study were increased by 0.5% per year from 2003 to 2010, based on the growth rate used in that study. A review of current census data indicates a decline in the Warren population over the last several years; therefore, the selected growth rate is appropriate.

Traffic volume information for Metacom Avenue (Route 136) in the vicinity of Vernon Street and the Ocean State Plaza was obtained from a traffic impact analysis (TIA) for the *Proposed Stop & Shop Fueling Facility, Metacom Avenue (Route 136)* dated April 2010 and completed by Vanasse Hangen Brustlin, Inc. (VHB). Counts for this study were completed in October 2009, and were therefore increased by 0.5% to 2010.

Hourly automated traffic recorder (ATR) data from August 2008 for Metacom Avenue (Route 136) in Bristol, just south of the Warren town line, was also obtained from the RIDOT Traffic Management Section for use in this report.

Crash data for the most recent three-year period for the Metacom Avenue (Route 136) corridor was requested both from RIDOT Traffic Management Section and the Town of Warren Police Department. Data was received from RIDOT for the years 2007, 2008, and 2009, while data from the Warren Police Department included crashes reported between October 1, 2007 and October 1, 2010. The data received has been analyzed to determine potential existing safety concerns throughout the study area.

Speed studies were completed along Metacom Avenue (Route 136) to determine average travel speeds throughout the corridor. The first speed study was conducted on Metacom Avenue (Route 136) northbound near Rosa Boulevard, in the vicinity of Parker Mills, the second on Metacom Avenue (Route 136) near the Ocean State Plaza, and the third on Metacom Avenue (Route 136) near Fatima Drive.

Existing Traffic Volumes

Traffic volumes obtained from the RIDOT Safety Improvements study and the Stop & Shop TIA were increased by 0.5% per year from 2003 to 2010 and 2009 to 2010, respectively, based on the growth rate used in both studies. A review of current census data indicates a decline in the Warren population over the last several years; therefore, the selected growth rate is appropriate.

Table 1 below indicates the projected 2010 traffic volumes along Metacom Avenue (Route 136) between Kickemuit Road and Franklin Street. The AM peak hour is 7:15 to 8:15 AM and the PM peak hour is 4:45 to 5:45 PM, based on the peak hours selected for that study.



Table 1: Projected 2010 Traffic Volumes Kickemuit Rd./Franklin St.

	AM Peak	PM Peak
Metacom Ave between Kickemuit Rd and Child St		
Northbound	1387 vph	1185 vph
Metacom Ave between Child St and Arlington Ave		
Northbound	1468 vph	1432 vph
Arlington Ave between Kickemuit Rd and Child St		
Southbound	936 vph	1412 vph
Arlington Ave between Child St and Metacom Ave		
Southbound	968 vph	1474 vph
Metacom Ave between Arlington Ave and Franklin St/Libby Ln		
Northbound	1408 vph	1178 vph
Southbound	882 vph	1358 vph
Metacom Ave between Franklin St/Libby Ln and Vernon St		
Northbound	1354 vph	1120 vph
Southbound	814 vph	1327 vph

Table 2 below indicates projected 2010 volumes along Metacom Avenue (Route 136) in the vicinity of Vernon Street and the Ocean State Plaza. Volumes from the Stop & Shop study were available for the PM peak hour of 4:00 to 5:00 PM and for the Saturday peak hour of 11:30 AM to 12:30 PM. ATR data collected for that study indicates that the typical average daily traffic (ADT) along Metacom Avenue (Route 136) in this area is approximately 21,950 vehicles per day on a typical weekday and approximately 25,400 vehicles per day on a typical Saturday.

Table 2: Projected 2010 Traffic Volumes Vernon St.

	PM Peak	SAT Peak
Metacom Ave between Vernon St and Ocean State Plaza		
Northbound	945 vph	1083 vph
Southbound	1125 vph	1086 vph
Metacom Ave South of Ocean State Plaza		
Northbound	963 vph	1115 vph
Southbound	1182 vph	1126 vph

The RIDOT 2009 Traffic Flow Map, which includes data from 2004-2008, indicates that the ADT on Metacom Avenue (Route 136) just north of the Warren-Bristol Town Line is approximately 24,100 vehicles per day. The Flow Map also indicates that the ADT on Metacom Avenue (Route 136) just over the line in Bristol is approximately 23,100 vehicles per day.

Additional August 2008 traffic volumes were obtained from RIDOT for the Metacom Avenue (Route 136) corridor in Bristol, just south of the Warren town line. At the location of the count, Metacom Avenue (Route 136) is one lane in each direction. The weekday ADT in the northbound travel lane for the month of August was approximately 12,171 vehicles per day, while the weekday ADT in the southbound lane was 9,251 vehicles per day. The overall weekday ADT for the roadway was approximately 21,421 vehicles per day. The peak hour counts for the assumed peak hours of 7:00 AM to 8:00 AM and 4:00 PM to 5:00 PM are provided below.



Table 3: Projected 2010 Traffic Volumes South of Warren Town Line

	AM Peak	PM Peak
Metacom Ave between the Warren Town Line and Tupelo Street (Bristol)		
Northbound	664 vph	942 vph
Southbound	546 vph	621 vph

Existing Travel Speeds

Several speed studies were completed along Metacom Avenue (Route 136) to determine average travel speeds throughout the corridor. The first speed study was conducted on Metacom Avenue (Route 136) northbound near Rosa Boulevard, in the vicinity of Parker Mills. The posted speed limit along this section is 25 miles per hour. The results of the speed study indicate that the 85th percentile travel speed is 36 miles per hour, with 100 percent of the vehicles sampled traveling over the posted speed limit.

The second speed study was completed on Metacom Avenue (Route 136) northbound and southbound in the vicinity of the entrance to the Ocean State Plaza. The posted speed along the corridor at this point is 35 miles per hour. A smaller sample size was used for this speed study, as it was difficult to observe a true free-flow speed through this area due to platooning. Results of the speed study indicate that the 85th percentile travel speed northbound was 41 miles per hour, while the 85th percentile speed southbound was 40 miles per hour. Eighty percent and fifty percent of the sample vehicles northbound and southbound, respectively, were traveling above the posted speed limit.

The third speed study was conducted on Metacom Avenue (Route 136) in the vicinity of Fatima Drive, where the posted speed limit is 35 miles per hour. Results of the speed study indicate that the 85th percentile travel speed northbound was 36 miles per hour, and the 85th percentile travel speed southbound was 37 miles per hour. Speeds were generally slower through this section, potentially due to an increased number of curb cuts and likelihood for slowing or entering vehicles. Twenty four percent of northbound traffic and 40 percent of southbound traffic were traveling above the 35 mile per hour posted speed. Just south of the location of this speed study in Bristol, the speed limit on Metacom Avenue (Route 136) is raised to 40 miles per hour.

Existing Conditions Capacity Analysis

Capacity analysis calculations to determine existing levels of service (LOS) were completed utilizing the existing travel volumes obtained for the Metacom Avenue (Route 136) corridor. Level of Service is a quality measure describing operational conditions within a traffic stream, generally in terms of service measures such as speed, travel times, traffic interruptions, etc. Six LOS are defined for each type of facility, from A to F, with A representing the best operating conditions and F representing the worst operating conditions. The capacity analysis was completed utilizing the latest version of the Highway Capacity Software (HCS), which implements the methodologies of the Highway Capacity Manual (HCM). The calculations were completed using the multilane highways application, which assumes a minimum travel speed along a corridor to be 45 miles per hour. The recorded 85th percentile travel speeds on Metacom Avenue (Route 136) were lower than 45 miles per hour



at all sections along the corridor. The multilane highways application does not provide delay times through the corridor, but provides instead the flow rate through the corridor which is measured in passenger cars per hour per lane (pc/h/ln). The maximum flow rate for LOS A is 490 pc/h/ln, LOS B is 810 pc/h/ln, LOS C is 1170 pc/h/ln, LOS D is 1550 pc/h/ln, LOS E is 1550 pc/h/ln, and LOS F is 1900 pc/h/ln. The calculated LOS and flow rate for each section of the corridor are provided in the tables below.

Table 4: LOS and Flow Rate – AM and PM Peak Hours Kickemuit Rd./Franklin St.

	AM Peak	PM Peak
Metacom Ave between Kickemuit Rd and Child St		
Northbound	LOS B (756)	LOS B (646)
Metacom Ave between Child St and Arlington Ave		
Northbound	LOS B (800)	LOS B (780)
Arlington Ave between Kickemuit Rd and Child St		
Southbound	LOS B (527)	LOS B (769)
Arlington Ave between Child St and Metacom Ave		
Southbound	LOS B (527)	LOS B (803)
Metacom Ave between Arlington Ave and Franklin St/Libby Ln		
Northbound	LOS B (767)	LOS B (642)
Southbound	LOS A (480)	LOS B (740)
Metacom Ave between Franklin St/Libby Ln and Vernon St		
Northbound	LOS B (738)	LOS B (610)
Southbound	LOS A (443)	LOS B (723)

According to the results of the capacity analysis, Metacom Avenue (Route 136) and Arlington Avenue between Child Street and Vernon Street operate at acceptable levels of service during the AM and PM peak hours. Several sections are close to the threshold between LOS B and LOS C, however, LOS C is still considered acceptable in urban areas.

Table 5: LOS and Flow Rate – PM and Saturday Peak Hours Vernon St.

	PM Peak	SAT Peak
Metacom Ave between Vernon St and Ocean State Plaza		
Northbound	LOS B (502)	LOS B (591)
Southbound	LOS B (610)	LOS B (568)
Metacom Ave South of Ocean State Plaza		
Northbound	LOS B (514)	LOS B (596)
Southbound	LOS B (645)	LOS B (615)

According to the results of the capacity analysis, Metacom Avenue (Route 136) in the area of Vernon Street and the Ocean State Plaza operates at an acceptable level of service during both the PM and Saturday peak hours. All directions are well within the threshold of LOS B for both peak hours.

To determine operations in the vicinity of the lane drop on Metacom Avenue (Route 136), volume data obtained from RIDOT for Metacom Avenue (Route 136) between Tupelo Street and the Warren Town Line in Bristol was used. Although the data is for Metacom Avenue (Route 136) in Bristol rather than Warren, the character of the roadway is similar from the



lane drop in Warren to Tupelo Street in Bristol. It is expected that the travel volumes will be consistent, as there are no major generators or side streets within this area. Because the roadway is one lane in each direction at this point, the two-lane analysis methodology was used. This methodology provides LOS and volume to capacity (V/C) ratios rather than flow rates. The results of the analysis are provided below.

Table 6: LOS and V/C Ratio – AM and PM Peak Hours South of Warren Town Line

	AM Peak	PM Peak
Metacom Ave between the Warren Town Line and Tupelo Street (Bristol)		
Northbound/Southbound	LOS E (0.40)	LOS E (0.52)

In the area of the lane drop, the LOS on Metacom Avenue (Route 136) changes significantly, from LOS B in the area of Ocean State Plaza, to LOS E in the vicinity of the town line. On a two-lane roadway, LOS E generally indicates travel speeds well below 40 miles per hour and a significant amount of platooning. Because of the lack of passing zones, a slow moving car will have a significant impact on capacity and operations. Although the roadway LOS is low, the volume to capacity ratio is at 0.40 for the AM peak and 0.52 for the PM peak, indicating that the roadway is operating below capacity.

Impervious Cover Analysis

Expansive asphalt/paving within the corridor severely limits groundwater infiltration processing and contributes to the amount of stormwater runoff channeled particularly to the Kickemuit River. Typically, an Impervious Cover Analysis is conducted for an entire watershed and is often a labor-intensive undertaking. As this task is supplementary (yet contributory) to the primary goals of zoning text/map amendments, subdivision amendments, geometric roadway improvements and design guidelines, a complete and simple methodology has been utilized, the Total Impervious Area (TIA) - Direct Measurement methodology.

The TIA methodology was performed via a combination of a windshield survey and use of aerial photography, measuring all impervious areas; roofs; sidewalks; driveways; streets; and, parking lots.

To better understand the relationship of impervious cover relative to the built environment, only parcels fronting on Metacom Avenue have been delineated by Narragansett Bay Watershed sub-basins: Palmer River; Kickemuit River; and, Warren River. For each sub-basin, the total impervious area was divided by the total parcel area fronting on Metacom Avenue to generate the impervious cover calculation (as a percentage of the overall sub-basin and watershed as a whole). The results of the analysis are provided below.



Table 7: Impervious Cover for Parcels Fronting on Metacom Avenue

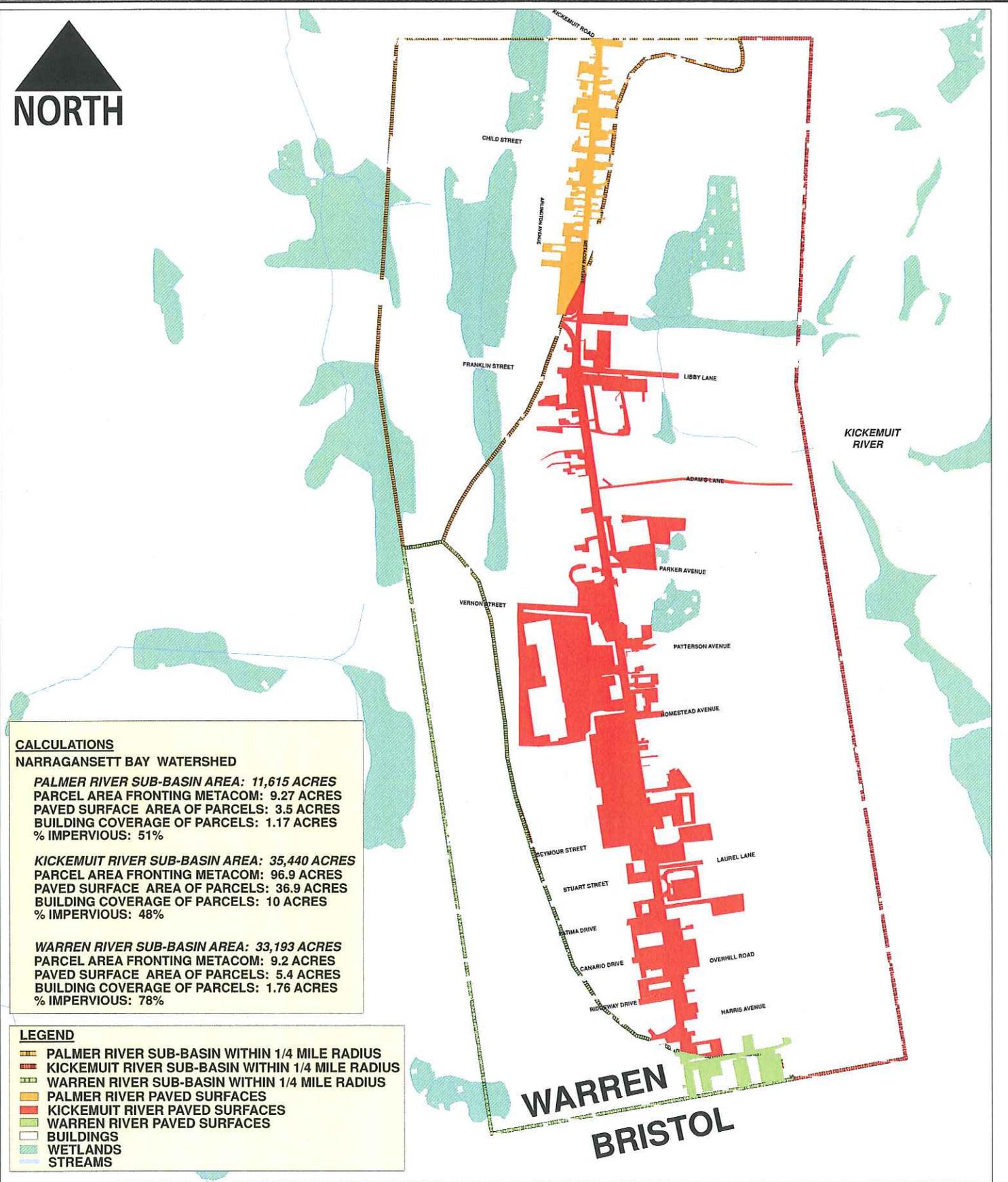
Narragansett Bay Watershed			
	Palmer River Sub-Basin	Kickemuit River Sub-Basin	Warren River Sub-Basin
Total Area of Sub-Basin	11,615 acres	35,440 acres	33,193 acres
Total Parcel Area	9.27 acres	96.9 acres	9.2 acres
Total Paved Surface Area	3.5 acres	36.9 acres	5.4 acres
Total Building Coverage	1.17 acres	10 acres	1.76 acres
Percent Impervious Cover	51%	48%	78%

Numerous studies show a clear correlation between impervious cover in a watershed and the degree of water impairment observed. Numerous papers have shown that relatively low percentages (25%) of impervious cover in a watershed can result in a clear deterioration of surface water quality⁴

Findings from the Impervious Cover Analysis will be utilized in the development of recommendations relative to Low Impact Development (LID) and sustainable practices for new/redevelopment.

⁴ North Jersey Resource Conservation & Development, *Estimating Impervious Cover and Its Impacts on Water Resources*, May 2002.





CALCULATIONS

NARRAGANSETT BAY WATERSHED

PALMER RIVER SUB-BASIN AREA: 11,615 ACRES
PARCEL AREA FRONTING METACOM: 9.27 ACRES
PAVED SURFACE AREA OF PARCELS: 3.5 ACRES
BUILDING COVERAGE OF PARCELS: 1.17 ACRES
% IMPERVIOUS: 51%

KICKEMUIT RIVER SUB-BASIN AREA: 35,440 ACRES
PARCEL AREA FRONTING METACOM: 96.9 ACRES
PAVED SURFACE AREA OF PARCELS: 36.9 ACRES
BUILDING COVERAGE OF PARCELS: 10 ACRES
% IMPERVIOUS: 48%

WARREN RIVER SUB-BASIN AREA: 33,193 ACRES
PARCEL AREA FRONTING METACOM: 9.2 ACRES
PAVED SURFACE AREA OF PARCELS: 5.4 ACRES
BUILDING COVERAGE OF PARCELS: 1.76 ACRES
% IMPERVIOUS: 78%

LEGEND

- PALMER RIVER SUB-BASIN WITHIN 1/4 MILE RADIUS
- KICKEMUIT RIVER SUB-BASIN WITHIN 1/4 MILE RADIUS
- WARREN RIVER SUB-BASIN WITHIN 1/4 MILE RADIUS
- PALMER RIVER PAVED SURFACES
- KICKEMUIT RIVER PAVED SURFACES
- WARREN RIVER PAVED SURFACES
- BUILDINGS
- WETLANDS
- STREAMS

WARREN
BRISTOL

IMPERVIOUS COVER ANALYSIS

WARREN, RHODE ISLAND



FIG. 1.1.10

